

The future of interactive entertainment
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Arrivederci 32bit?
Super Mario 64 redefines 3D videogaming
34
issue thirty-four
140 pages
Biggest Issue Ever
Shigeru Miyamoto's Mario series is the epitome of brilliant game design, encompassing superb control, intelligent structure and almost limitless scope. Edge reports from E3 in Los Angeles where the most significant game of the decade was unveiled. Just how good is Super Mario 64?
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Nintendo raises the bar (again)

Those that have not experienced the supreme playability and depth of Nintendo's in-house 8bit and 16bit games may appear slightly ambivalent towards its first batch of 64bit software. The subtle controls, accessibility and overall scope of 16bit titles such as *Super Mario Bros 3*, *Zelda* and *Super Mario Kart* are factors that, on the surface, were undermined by functional rather than outstanding graphics. Those with an understanding of what makes Nintendo's games so special, however, will have been especially excited by what they saw at E³ in Los Angeles this month.

Riding in on the tailend of the next generation wave with a brace of superb N64 launch games, Nintendo has not only set a new standard for 3D game design, but it has also exploited its technology sufficiently to eclipse the current state-of-the-art in videogaming. Irrespective of their immaculate gameplay, graphically, both *Super Mario 64* and *PilotWings 64* have leapfrogged the overcrowded next generation marketplace with their crisp, detailed environments and unmatched visual diversity. With 40 people having worked on *Mario* alone, though, it's little wonder that thirdparty N64 efforts at E³ fell far short by comparison.

Perhaps the most significant element of the N64 launch was the fact that Nintendo has obviously invested much time thinking about the way 3D games should be designed. As progressions from 2D to 3D, both games are stunningly bold ventures and go far beyond what was expected from such a habitually cautious videogames company. From their playability and intuitive camera controls to their sheer scope, they represent perhaps the greatest example yet of Nintendo rewriting the rule book.

The Future is almost here...

inside EDGE





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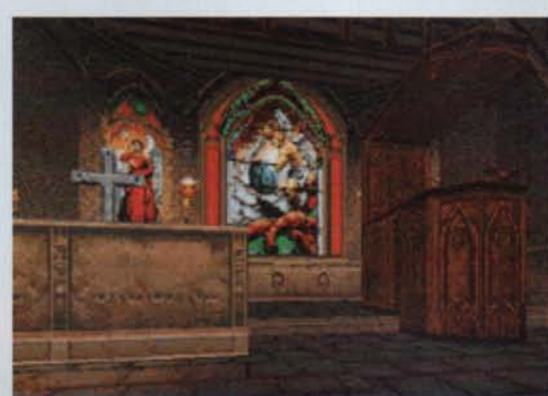
Cover image: Mario, © Nintendo Company Ltd 1996

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Photography: Jude Edginton

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Photography: Mark Koehler



The E³ show (top, top right), NOA chairman, Howard Lincoln (above left), Java (above right)



Photography: Mark Koehler





Chris Crawford (top), *Murder Death Kill* (above)



CGI by Erik Holden (top), *International Track & Field* (above)



Photography: Jude Edginton



Photography: Jude Edginton



Photography: Martin Burton





REGULARS



Nintendo's 64bit technology is showcased at E³ in Los Angeles – **Edge** discovers true 32bit-beating 3D gaming and provides a full in-depth report/**page 6** • Sega reveals an Internet link-up for the Saturn/**page 11** • Millennium software fulfils the artificial intelligence dream with *Creatures*/**page 12**



*The latest **news** from the world of interactive entertainment*

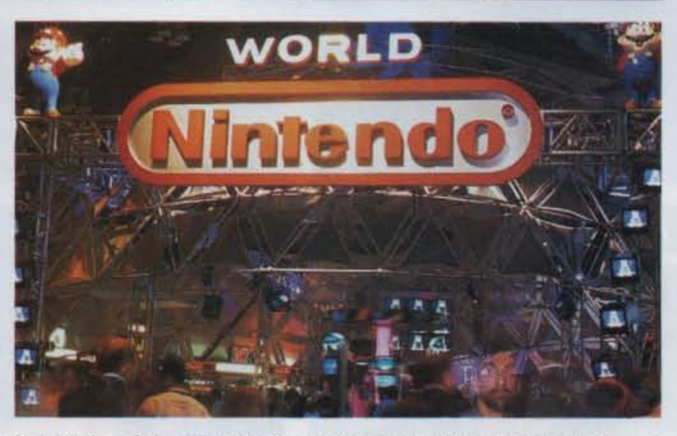
E³: **Nintendo** rekindles **Mario's** magic

The Electronic Entertainment Expo proves to be the focal point of the games world









From top left, clockwise: Peter Main announces the N64's retail price to much shrugging of shoulders; the Los Angeles convention centre; Howard Lincoln evangelises about the N64's superior gameplay; the proof of the pudding, *PilotWings64*; Nintendo village, bigger and better than ever



Game Boy relaunched

Nintendo has announced a restyled version of its popular portable Game Boy.

Launched as Game Boy Pocket, the new machine is 30% smaller and roughly half the weight of the original, requiring only two AA batteries. Finished in sleek matte silver, it features a new black-and-white screen design which reduces the infamous Game Boy blur and can be viewed more comfortably from various angles.

Although set to retail in the States in November (at $59.95), no European plans have yet been announced.

Subtlety is a truly alien concept in the USA and this was no more evident than within the walls of the Electronic Entertainment Expo which took place recently in Los Angeles. Against a head-hammering cacophony of jingles, jangles and explosions was a numbing concoction of interactive entertainment drenched with typical US showbiz glitz. And naturally, it was a format that worked. Now in its second year, E^3 has quickly turned into the videogame industry's equivalent of the Cannes Film Festival, only with smaller egos and a little less panache.

For getting a broad overview of the latest developments within the industry, E^3 is an essential event – even if the three day marathon does rip the living soul out of the average human being. For most exhibitors, showfloor etiquette involved shouting as



Prior to the show, privileged journos witnessed Shigeru Miyamoto taking *Super Mario 64* through its paces

loudly as possible. For some, this was merely a case of turning up the volume on the sound system (Scavenger's outlandish stand blasted out thumping techno much to the annoyance of its neighbours), while others resorted to more familiar tactics employing hordes of blonde Californian babes to parade the stands in very little (some accompanied by queues of delegates eager to have an intimate moment with their object of desire captured on Polaroid). In fact, with the exception of the Nintendo 64, there was more silicon walking around than inside consoles.

Without question, it was Nintendo that dominated this year's event with an enormous stand promoting its official American Nintendo 64 launch. A day prior to the show, the company chose to unveil its console to the press in an entertaining but bashful demonstration of its 64bit technology. Entertaining because both *Super Mario 64* and *PilotWings 64* are truly charming games packed with humour. And bashful because this wasn't really a technology demo at all, but a heart-warming reminder of why Nintendo still has a better understanding than any other company of what makes a great videogame.

However true it may be, 'the fun machine', as the N64 is subtitled, sounds ludicrous

The following day *Super Mario 64* eclipsed every other videogame and was on the lips of most people at the show, despite the immense difficulty in trying to actually play it, due to the sheer number of people jostling for a slice of the action. To watch *Super Mario 64* is a joy, providing limitless appeal with its unique perspectives and beautiful graphics. But to play it is to discover what a supreme piece of design it really is. Along with the equally wonderful *PilotWings 64* (which makes most Pentium flight sims look like they're running on an Atari ST by comparison), it commanded more playtime than anything else at the show.

NCL's own *WaveRace 64* came a close third to its launch duo. Having now received a complete graphical overhaul since its announcement at Shoshinkai (as Miyamoto hinted during **Edge**'s interview in **E29**), the game now features jet skis instead of power boats, and while graphically rather rough, this early version played well and proved great fun for anyone willing to give it a go. Nintendo also unveiled six other Nintendo 64 games within the confines of its huge arena. These were a mixture of the promising (*Wave Race 64, Blast Corps*), the predictable (*Shadows of the Empire, Killer Instinct*),

What is it?

This Channel 4 TV show, dedicated to computer and videogames, is set to return for its sixth series in October. It is perhaps most famous for its unassuming presenter and of course the fact that a disembodied Patrick Moore gives out gaming hints



Getting to grips with *Super Mario 64* wasn't easy. Nintendo's show people made sure than no-one hogged the joypad for too long

and the relatively average (*Kirby's Air Ride, Cruis'n USA*).

Rare's duo of *Blast Corps* and *Killer Instinct* showed that, at least graphically, the company has been able to exploit the 64bit chipset better than most of Nintendo's other developers. The former was an unusual game requiring the player to clear a path with a bulldozer to prevent a runaway missile carrier from detonating – the explosions were the most notable feature, although quite how the finished game will

Continued next page

Continued

shape up is obviously in Rare's hands. After so much former hype regarding *Killer Instinct's* importance in the N64's assault (the game was used as a spearhead for the clandestine Ultra 64 previews in Chicago two years ago - see E12), it arrived as something of a disappointment with no effort taken to implement 3D routines to rival *Virtua Fighter 2* or *Tekken 2*. Instead, despite some wonderfully colourful graphics, it remained resolutely in *Street Fighter II* and *Mortal Kombat* territory (presumably to appease the US fighting game market still consumed by this style of game).

Perhaps as much as an indication of Nintendo's reticence to share technical information with its licensees as of its own creative supremacy, titles such as *Shadows of the Empire*, *Cruis'n USA* and *Kirby's Air Ride* (which again, looked better at Shoskinkai), simply fell short of the N64's initial mission statement. That's not to say they weren't impressive, they just didn't live up to full expectations. Lucas' *Shadows of the Empire* proved again that the company is most comfortable when developing for the PC, and apart from some impressive screen depth, there was little in this new Star Wars game to showcase the machine's abilities. As for *Cruis'n USA*, this arcade port showed signs of the developers having difficulties improving on the original. Supposedly boasting a higher frame rate (although still relatively clunky), the game fell short of the racing game standard already set on the 32bit machines and the car proved difficult to control with the analogue stick.

Other Nintendo 64 games did appear at the show, although were absent from the Nintendo booth. Acclaim's *Turok: Dinosaur Hunter* was in playable form and looked promising, despite the blatant fog effect used to disguise the screen's lack of distance drawing. Virgin's *Freak Boy* was in demo form, bearing no resemblance to the *Stackers* puzzle game that N64 Internet junkies have been getting excited over. Other N64 games were William's *Doom 64* and Mindscape's *Monster Dunk*, a basketball game featuring monsters. How original.

Despite the relative strength of the N64 line-up (and arguably the two best games of the show), Nintendo's confirmation of the machine's $249 price tag was met with a mild reception. One reason for this was Sony. On the first morning of the show, during a conference on videogames which included NOA's **Howard Lincoln** and SOA's **Tom Kalinske**, Sony's executive vice president **Jim Whims** dropped the bomb by announcing a PlayStation pricecut to an astonishing $200 (SCEE also announced a simultaneous UK price drop to £200). The following day, Sega followed suit and matched Sony's price with its Saturn. Dodging the curved ball of how the Nintendo 64 is now in fact the most expensive next generation games system →

It is...

GamesMaster which is wearing surprisingly well considering three similar shows, Bad Influence, Total Reality and Reactive have been taken off the air. Dexter Fletcher did try to kill off the show two seasons ago by being agonisingly unwatchable. He failed



Virtual Boy was still keeping its head above water with new titles such as *Dragon Hopper*



















Nintendo previewed eight games at the show for the N64: as well as *Super Mario 64* and *PilotWings 64*, the following games were playable at the event (from top left): *Cruis'n USA, Kirby's Air Ride, Shadows of the Empire, Killer Instinct, Blast Corps* and *Wayne Gretzky's 3D Hockey*. Other titles shown on video (continued , left to right) were *Super Mario Kart R. Doom 64, Goldeneye, Mission Impossible, Body Harvest* and *StarFox64*





Sony's PlayStation arena employed banks of TV monitors to promote Naughty Dog/Universal Interactive's *Crash Bandicoot* (left). Despite internal political wrangles, Psygnosis borrowed Sony's TV tunnel for visual flair (right)

→ (whereas it initially promised to be the cheapest). NOA's executive VP **Peter Main** haughtily stressed that it was 'the quality of the games' that counted and that would ultimately make the machine worth paying for. The fact that the potential N64 consumer is also faced with shelling out another $70 for *Super Mario 64* (since no game will be bundled with the machine) now throws up considerable doubts over Nintendo's potential market share.

Nintendo's rivals Sony and Sega may have distracted some attention from the N64 stand with their ultra competitive pricing announcements, but the software on display was considerably less cut-throat. Sony once again showed it had to rely upon a third party development (Naughty Dog's *Crash Bandicoot*) to show off the power of its machine. *Crash* (E33) is an admirable attempt at producing a 3D platformer and does play well, but inevitably it pales next to *Mario 64* in virtually every respect.

Other notable PlayStation newcomers included a reworking of Konami's famed *Contra* series (also for the Saturn) by Hungarians Apaloosa (previously known as Novatrade, and the designers of Sega's *Ecco The Dolphin*). This took a slanted overhead perspective (similar to the Capcom coin-op, *Mercs*) and also included a rather crude 3D mode for use with traditional red/blue 3D glasses. Square's *Tobal No.1* (see page 41) was in playable form but despite matching the speed of *Tekken* (60fps) its lack of graphical detail wasn't saved by **Akira Toriyama**'s strong character designs.

Arguably the strongest PlayStation software at the show was from Psygnosis in the form of *Wipeout XL* (*Wipeout 2097* in Europe - see E33), *F1*, and, from affiliate developer, Reflections, *Destruction Derby 2* and *Monster Trucks*. But there was a feeling that something was missing for the PlayStation, highlighted by the display of weak Japanese games such as Aquanaut's *Holiday* (aimed at 'enthusiasts who appreciate new age music' - now there's massmarket targeting for you) which was brought in to plug the gaps between such US-developed revamps as *2 Xtreme*, and *Twisted Metal 2: the world tour*. It was also announced that several Japanese RPGs such as the well-received *Beyond The Beyond* and older examples such as *Arc The Lad* will get the translation treatment for US release.

On the whole, the Saturn fared better. As well as a surprise showing of Westwood's revered *Command & Conquer* and Amazing Studio's *Heart Of Darkness* (which now looks a tad dated due to its interminable development period). *Nights* from Sonic creator **Yuji Naka**, was unveiled (complete with Sega's new analogue Saturn joypad, mimicking Nintendo's own). Alongside this was *Sonic Extreme*, a fairly impressive 3D interpretation of *Sonic* coded by SOA's Sega Technical Institute. There was also an unexpected showing of *VF Kids* (ported swiftly from its ST-V coin-op board) to make up for the omission of most of its next wave of arcade conversions. The announcement of a forthcoming 'fab four' comprises *Fighting Vipers*, *Manx TT* (supposedly running at 60fps), *Virtual-On* and *Virtua Cop*. Only an early version of the latter title was shown at the event.

It was Sega's technology plans that attracted the most interest, though.











PlayStation highlights: *Twisted Metal 2: the world tour*; Naughty Dog's *Crash Bandicoot*; Reflections' *Monster Trucks* and *Destruction Derby 2*. Above: Andrew Spencer's *Ecstatica 2* (PC)

Who is it?

This small man, who believes he is a flying space hero, has recently starred in a top grossing film and an equally successful Mega Drive game. Some believe the latter may well turn out to be the last great title to appear on Sega's 16bit console

PlayStation goes DIY

Sony has unveiled a new PlayStation format to allow PC-owning Japanese gamers to create their own PlayStation games.

The dark grey machine comes with development libraries and tools, covering sound, 3D graphics, etc.

Sony will not allow finished games to be published, and, at $1,200, the system is likely only to be something of a luxury for the most avid Nipponese videogame fans. There are no plans for a western release.

Continued next page



Square Soft's *Tobal No.1* was a smooth, fast beat 'em up with well-designed characters, but Namco have nothing to worry about

Continued



Sega's Saturn title *VF Kids* has been ported from its ST-V board and is essentially VF2 with a new lick of paint



It is...

Buzz Lightyear, the charismatic space ranger from Disney's technological marvel, Toy Story. The game leapt to number one in the Mega Drive charts and will probably be followed by the videogame based on the movie, Pocahontas, when it is released in the Autumn

Following on from its unveiling of its Model 3 board at the Tokyo AOU show, it presented the same realtime *VF3* demo at E³ which guaranteed a huge crowd. Rather amusingly, company president **Tom Kalinske** even had the gall (during his speech at Sega's House of Blues party) to suggest that (as *VF3* was on its way to the Saturn) 'you can't do that on Sony or Nintendo'. For licensing reasons, that's true, but you certainly can't do that on the Saturn either, Tom. Of more immediate relevance was Sega's Internet-ready Net Link modem (see page 11) and browser software for the Saturn.

Sega even dipped its toe into the PC market, with the announcement of Sega Entertainment, a company set up specifically to port games to the PC. The first results were surprisingly good with a Pentium version of *VF* looking indistinguishable from its Diamond Edge/nVidia-accelerated counterpart. Ten titles, including *Daytona* and *Manx TT*, are expected this year.

The PC itself made its strongest ever showing. Once again, Scavenger blew away most of the competition in terms of







Sega's stand at E³ included noticeably less games than Sony's although its Net Link adaptor and *VF3* display added valuable kudos

technology, although it was interesting to note that it presented a wealth of new 3D projects such as *Terminus* (see page 36), *Tarantula* and the rather lovely *Aqua*, despite long-awaited titles such as *Scorcher*, *Amok* and *Into The Shadows* still a way off release. A case of spreading resources too thinly?

3D accelerator technology was one of the key attractions on the PC side at E³, with 3Dfx demos of titles such as Core Design's *Tomb Raiders* and Ocean's *HMA Carnage* proving that this card (see E33) is a serious contender. LucasArts chose to show off its *Dark Forces II* using the Rendition board to stunning effect, while VideoLogic's PowerVR technology played host to a neat collection of demos.

Overall, E³ was a spectacular show for all concerned. As usual most companies are still investing their efforts in the singular pursuit of mind-blowing graphics, although the widespread shift towards 3D is facilitating greater levels of interaction. More than anything, though, E³ was a reminder that Nintendo is still king of the jungle in terms of defining what videogaming is all about. With a September 30 launch date still being adhered to, and two of the greatest games of all time available from day one, it looks assured to recapture at least some of the market it has already lost to its rivals. Now, three years down the line from Project Reality's inception, the company is about to face its toughest battle ever.











From top left, clockwise: *Heart of Darkness* made a surprise appearance on the Saturn; *VF Kids* was ported from ST-V; *Sonic Extreme*; Sega's showstopper *Nights*; *Command and Conquer*

Saturn goes analogue

No doubt in response to Nintendo's unusual joypad, Sega previewed its own analogue pad for the Saturn which delegates could try out with Nights. Rather cumbersome when compared to Nintendo's, this new pad includes a Neo-Geo CD-style thumbpad and will retail for $40 (although a Nights joypad pack will cost $70).

Sega nets Saturn users

Sega's Saturn is given tools to access the Net

Sega has developed an add-on for the Saturn which will allow console users to access the Internet. The Net Link device combines a 28,800-bits-per-second speed modem with a custom-designed HTML 2.0-compatible Internet browser. The device plugs into the Saturn's cartridge port and will retail for $199 when it is released in the States later this year.

To back up the service, Sega plans to offer a range of customer services, including, 'access to premium Web sites and customised newspapers personalised with the user's predetermined topics of interest'. The company also promises that it is 'heavily allocating resources' towards multiplayer gaming and interactive entertainment over the Net. Consequently, Sega has five Net Link-compatible games in development and companies like GT interactive, Virgin and Interplay will all have Net Link games on the shelves by Christmas.

Unlike the PC or Mac, the Sega Net Link enables users to browse the Internet without a keyboard or mouse, and using a TV instead of a monitor. As **Kerry Bradford**, general manager of Sega Online, states, 'New customised features, including a virtual keyboard and a space magnifying function allow for ease of use and enhanced visibility on the TV.'

Sega says the on-screen keyboard is a point-and-click interface that also incorporates pre-determined grouped letters, such as 'http://' and '.com'.

The service, incorporating network gaming, email, online chats and WWW connection, will be free for one month to new Net Link users and from then on will cost from $19.00 a month.

The Saturn Net Link fits into the cartridge port on the back of the console and combines a high-speed modem with a Net browser

Sega's Net Link page is likely to be graphics-heavy considering the lack of keyboard, etc

Kids call for *Daytona+*

Following thousands of requests from gamers, Sega is developing an update of *Daytona* for the Saturn.

The *Championship Circuit Edition* will feature new tracks, a twoplayer option and many more undisclosed features not available in the arcade.

The *Sega Rally* team are currently working on the game, which should see an autumn release in the US.

Datebook

June

William Latham and Zara Matthews – 'Chimera and Chromosomes' – May 18 to July 7, Terrace Art Gallery, Harewood House. Tel: **0113 288 6331**, fax: **0113 288 6467**

GTI Expo '96 – June 29 to July 1, Taipei World Trade Centre, Taipei, Taiwan. Taiwan's largest trade show for games machines. Opens to the public on the last day. Tel: **886-2-760-7407**, fax: **886-2-762-3873**

July

The Phoenix '96 – July 18-21, Long Marston, Stratford upon Avon. Four day music event featuring Leftfield, Chemical Brothers and Massive Attack, as well as old timer, David Bowie, and past-it punk jokes, The Sex Pistols. Contact info line, tel: **0181 963 0940**

Virtual Reality World & VRML World 1996 – June 11-14, San Jose, California. Is VR the future of computing or an over-expensive fad involving uncomfortable headsets? This is the place to find out. Contact Meckler Media, tel: **001 800 632 5537**, fax: **001 203 226 6976**

Virtual Humans '96 – June 19-20, the Hyatt Regency Alicante, Anaheim, California. International conference on the role of the virtual human in VR environments. Organised by VR News, EDS and Silicon Graphics. Contact EDS, tel: **001 313 974 5686**, fax: **001 313 974 0724**

August

SIGGRAPH '96 – August 4-9, New Orleans. Premier computer graphics and VR show. Contact ACM, tel: **001 312 321 6830**, fax: **001 312 231 6876**

September

Australasian Gaming Expo '96 – Sept 1-3, Convention and Exhibition centre, Sydney, Australia. Contact Exhibition Management, tel: **61-3-9646-4044**, fax: **61-3-9646-1828**

JAMMA – Sept 12-14, Nippon Convention Centre, Tokyo, Japan. Contact JAMMA, tel: **81-3-3438-2363**, fax: **81-3-3438-2721**

Show organisers: if your show isn't listed here, it's only because you haven't told **Edge** about it. Do so on 01225 442244, or fax us on 01225 446019, or send details to Datebook, **Edge**, 30 Monmouth Street, Bath, Avon BA1 2BW

Artificial Intelligence enters next Millennium

A new videogame promises to lay the foundations for a revolution

Computer-based artificial life is poised to step out of the realms of science fiction and onto *Windows 95* desktops. Cambridge-based software house, Millennium Interactive, has developed the first engine to simulate organic life processes with any degree of realism. And its technology, which it has dubbed *CyberLife*, will form the basis of a *Windows 95* game called *Creatures*, due to be published by Warner Interactive this September.

Although endowed with the basic feel of the Sim-game genre, *Creatures* takes the concept much further. Each copy will come with a disk on which are stored six eggs, each containing dog-like creatures called Norns, each one bred from a special pool by Millennium. No two copies of *Creatures*, so Millennium claims, will contain Norn eggs with the same genetic make-up.

To start the game, you take an egg and place it in an incubator. Once your Norn has hatched and worked out how to get out of the incubator, you can start interacting with it, by stroking or hitting it, introducing it to objects in its environment and speaking to it.

If you are lucky - that is, your Norn manages to avoid viral infection or attack by the other animals in its microcosm (the nasty Grendels) - it will go through adolescence and then adulthood, changing accordingly. If you get two adult Norns running, they can mate and produce offspring, which will pick up the characteristics you have instilled in the first generation of Norns, and respond to your stimuli in a more sophisticated way. The fun of the game lies in observing the development of Norns over a period of several generations, and influencing that development. Because Norns accurately mirror living organisms, they will not always respond to your stimuli in a predictable manner - you cannot force them to act in any particular way.

Creatures will let you get inside your Norns, in addition to observing their external behaviour. You will be able to call up graphs tracing their level of happiness or discomfort, increase their metabolisms so they spend more time looking for food and even watch the neurones in their brains connecting as they learn or as their heart beats. **Michael Hayward**, managing director of Millennium, thinks that when enough copies of *Creatures* have been sold, players will start swapping Norns with each other over the Internet, and pledges that Millennium will post its own creatures, extra objects for their environments and even possibly new species on its Web site. The game's object-oriented structure enables this level of customisation to take place with the minimum of fuss.

Creatures is something of a Trojan horse, in that it allows Millennium to get its underlying *CyberLife* technology onto the market and thereby begin reaping its commercial potential. Perhaps the most fascinating aspect of the game is the multitude of potential uses for the *CyberLife* technology. Hayward says: 'We basically have a heterogeneous neural net which modifies itself. In order to train neural nets to perform a specific function, you have to go through thousands of possible inputs and outputs, answering "yes" and "no".' *CyberLife* is, in effect, a self-training AI engine. →

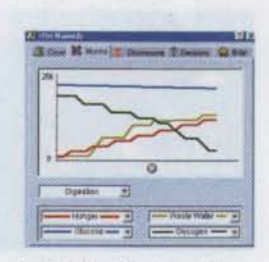




Millennium's *Creatures* is a cute simulation of life, from birth, through adolescence, reproduction, and eventually to death. Behind the colourful graphics and doe-eyed characterisation is an artificial intelligence technology which the company claims could revolutionise computing



The pet's eye view window enables you to see the world through your creature's eyes



Detailed charts, such as this digestion graph, show how the creature makes decisions

DATA stream

Copies of 'Everything I do, I do it for you' by Bryan Adams sold in the US: **4m**
Most-rented video of all time: ET – hired out **228,168,939** times
Virtuality gross profits in year up to Dec 31, 1995: **£5.86m**
VictorMaxx (another VR company) net losses for 1995: **$11.7m**
Biggest grossing computer-related film in the US and Canada: War Games – **$79,567,667**
Number of cinema screens in England: **1,969**
Number in India: **8,982**
According to a Durex survey, amount of times Americans have sex per annum: **135**
Thai's: **64**
Global average: **109**
Number of stairs on the rocket escalator leading to Segaworld: **193**
Weight of the escalator: **31.5 tonnes**
Likely shipments of *Windows 95* this year, according to Dataquest: **62.7 million**
Number of calories per 100g of Kit Kat: **502**
Average height of the **Edge** editorial team: **6 feet 2 inches**
Number of lives claimed by the black death in the thirteenth century: **40m**
Population of China mid-1995: **1,203,525,741**
Population of UK mid-1995: **58,303,592**
Percentage of readers of The Official UK PlayStation Magazine who also read The Sun: **49%**
Percentage who read The Times: **9%**
Percentage who enjoy needlecraft: **17%**
Number of short-sighted individuals in North America: **70m**
Silicon Graphics reported revenue for its third financial quarter ending March 96: **$677m**
Net Income for the quarter: **$53m**





***Creatures* enables the player to examine the Norn's neural network, or just dissect the brain into components**

He adds, 'It could be used, for example, to give the players brains in a football computer game. You could then play against a friend, and you would be training each of the 22 players as you played. Then you could send your team off to play on the Net, and, playing against a team with a different mode of play, it would come back with a new set of skills.'

Outside the games world, the potential applications of *CyberLife* are enormous. So enormous, in fact, that Hayward finds the prospect of embedding his technology rather daunting. 'Because we've made a game with the technology, we haven't built into it the accuracy required in real-world applications. The next stage is to create supersets of *CyberLife*. We want to exploit the technology before anyone else does, but we're just an entertainment technology company from Cambridge - we can't do it on our own. We need to forge partnerships with other companies.'

If you look at the sort of applications Hayward has in mind for *CyberLife*, you can see why. 'Say you want a smart search engine for a Net browser. At the moment, it takes 15 minutes to download everything and comes back with 87 hits, most of which are of no use. Imagine if you had a creature which lived on your machine, which you could teach to search for information on, say, microchips, and leave running in the background for days. The creature could email you when it has found what you're looking for. Traffic control systems are another application - a milk float might break down in Acton at 5.30am and cause a chain of events leading to gridlock at Trafalgar Square at 10.30. Imagine if you had an intelligent set of traffic lights, each of which could talk to one set either side of itself, and which could adjust its timings in such a way as to keep the traffic flowing as fast as possible at all times.'

Hayward cites intelligent TV programme selection systems as another potential *CyberLife* application, and believes the technology could even end up embedded in household consumer electronics items: 'Sharp, for example, has an intelligent microwave - you can tell it what food you're putting in and it will cook it for the correct length of time. It took a long time to develop, because somebody had to put every type of microwavable food into it and tell it when it was cooked.'

Whether or not Millennium Interactive manages to find partners and make piles of money out of embedding *CyberLife* in all sorts of unlikely outposts of modern life, you will be able to examine its technology when *Creatures* ships. If the game succeeds, the spectacle of artificial life proliferating throughout the world's computer systems could prove fascinating. Hayward thinks that, 'After several generations of Norns have been bred, you might find types with distinctive characteristics emerging from different countries, say, French or Japanese Norns. It would then be interesting to breed these with each other and see what happens.' Whether the artificial world steers clear of human phenomena such as war remains to be seen, however.

32bit prices plummet

Perhaps influenced by the imminent arrival of the N64, both Sony and Sega have dropped the prices of their 32bit consoles to $199 in the States.

In Britain, the PlayStation and Saturn are now being sold, by most dealers, at £199. In contrast, the N64 is likely to retail for $249 in the US (£200 in the UK).

Meanwhile, HMV are selling off 3DOs for £99 and 3DO games for £10.



Teach the creatures how to interact with different objects, such as these toys





By reacting to different stimuli, such as pain (above), the creature learns its way around the world, eventually gaining self awareness

The Java revolution

Imagine buying software for a PC and then running it on a Mac. With the cross-OS *Java*, non-compatibility may be an excuse made only by old megalomaniacs

The Internet, knocking ground for 'hip' media types and technophobes, is about to bite back, tipping the PC market upside down. The brew that is *Java* has caused a sensation over the last few months, with the world's leading computer companies bending over backwards in order to incorporate this must-have programming language that will, as some see it, end the desktop PC revolution.

It all started with a programming standard that would lessen the strain on the application-driven Internet. With one program to browse, and others to look at pictures, sound, video and animation, the World Wide Web was a tangled mess of applications. That is, until *Java* emerged. *Java* enables browsers to incorporate applets (tiny applications), be they spreadsheets or videogames, that can be accessed through your browser's window. The applet will not strain the computer's memory and will simply arrive through an HTML document and run. Embedded in the HTML text is a reference to two other files, the *Java* Class file, containing instructions and parameters for the said applet, and the actual applet, a stunning adaptation of the programmers' standard, *C++*. The applet, written in *Java* code, is an architecture-neutral, object-oriented, network-savvy, interpreted, robust, secure, portable, high-performance, multithreaded, dynamic language – to use all the buzz words at once.

In a little over six months, *Java* has secured Sun Microsystems the deal of the century, by having Apple, Hewlet-Packard, Hitachi, IBM, Microsoft, Novell, Silicon Graphics, SunSoft, The Santa Cruz Operation and Tandem Computers all planning to incorporate *Java* into their operating systems. Meaning every application written to support a particular OS will be able to run on all the other OSs, that support *Java*, which from the list above is practically every computer on the planet. *Netscape Navigator*, the browser used by as much as 60% of the world's WWW users, has supported *Java* for a little over two months and the impact has been astonishing. With *Java* technology coming out of the browser and into the OS, the world of computing will become one where software incompatibilities will be a thing of the past. Developers will be able to ship software, upgrades, patches and extra documentation via the Internet.



Earthweb's Gamelan (pronounced Gamma-lohn) is one of the leading Internet sites for information on *Java* applets

Java was initially developed for the video-on-demand concept that had the likes of Time Warner drooling in the mid-eighties. Under the code name of *Oak*, *Java* was a non-starter at first and public interest faded fast. But when the emergence of the Web took its amazing surge in early 1994, the need for a *Java*-like program was met. Suddenly, millions of Net users were accessing the same data, on incompatible platforms, using several different software packages. Netscape's *Navigator* browser is, of course, doing great business, due to its ability to combine most of the Internet strands into one browser – newsgroups, email, the Web and plugins have guaranteed *Netscape* the support of a vast majority of the Internet community.

Other developers have started to cultivate tools to bring the Internet's entities together. *Cyberdog* from Apple is a prime example of this, using a 'document-centric', rather than 'application-centric' approach to the many protocols required to use the Internet, as well as supporting *Java*. Apple's *OpenDoc* is a method of moving away from using big, memory-hungry applications which have many features that users will never use. Instead, you use only what is required. *OpenDoc* is basically a collection of small applications. When you need to spell check something, you simply request it. This way developers can concentrate on small, robust applications rather than battling the giants by trying to add more with each version.

Microsoft is attempting to provide its customers with two approaches to the Internet. One uses *Java*, the other uses Microsoft's *Visual Basic* Script, *Internet Explorer*, *FrontPage*, and *Internet Studio*. Microsoft believes some developers will want to write applications for the browser only, while others will just adapt OS-dependent applications for distribution over the Net. The Microsoft strategy is to integrate its browser into the operating system so that it is just another window on the PC. This unified interface (code-named Nashville) provides common navigation and viewing capabilities, somewhat like the *Cyberdog* approach.

Whichever company triumphs, this last 12 months will be written as a period where the computer industry was buzzing with *Java*. The heavies in the PC industry are refocusing their strategies to incorporate trends that the Internet is setting at an incredible rate. A platform has been set for worldwide development, and anybody can be involved.





Apple's 'document-centric' Cyberdog has just been released as a final version





More info...

Sun Microsystems is expanding its *Java* Internet language this month with a lightweight *Java*-based operating system, code-named Kona, along with a road map for its HotJava client development environment and the release of six new class libraries that will provide APIs for such capabilities as security, electronic commerce and applet-to-applet communications. Kona will interface between small-device hardware and Java applications, and it will run on a variety of hardware platforms. Motorola's Cellular Infrastructure Group is one of the first vendors to use Java for a cellular phone application.

Cyberdog
Apple's document-centric tool that brings all the Internet's separate entities together
http://cyberdog.apple.com/

The Java Centre
This is the UK's first applet bank. *Java* information can also be found here
http://www.java.co.uk

OpenDoc
Apple Computer's open, multiplatform architecture for component software
http://opendoc.apple.com/

The way games ought to be

Hi-octane games theory by Chris Crawford



Photography by Mark Koehler

Number 5: Conversing with computers

Interaction is a process involving listening, thinking, and speaking. Videogames are good at speaking, but how come they are such lousy listeners? **Chris Crawford** has the answer…

One of the more vexing problems in interactive design arises from the fundamentally asymmetric nature of the relationship between human and computer. All of our existing models of interaction presume communication between humans, who are fundamentally symmetric. For example, my standard interactive model is the conversation between two people. Note, however, that a conversation creates a balanced relationship between both parties. I speak in the same language that you use; I listen with the same ears and in much the same fashion. A conversation is a symmetric process involving two equal partners. If we remove the symmetry by giving all or most of the speaking to one person, then the event is no longer termed a conversation; it is a lecture. And, of course, lecturing during a conversation is rude, because it denies the equality of the listener.

But the relationship between human and computer that we establish when we design interactive entertainment is fundamentally asymmetric – it is not equivalent to a conversation between two human beings at all. The computer is not the same thing as a human being. This asymmetry constitutes one of the major elements that impacts the design of games.

I shall first recite some of the asymmetries at work. Let's think in terms of my standard definition of interactivity (a sequential process in which each interlocutor alternately listens, thinks, and speaks). What are the asymmetries in listening, thinking, and speaking?

Listening The human listens through his ears and eyes, while the computer listens through its mouse and keyboard. The human has a high capacity for information absorption. Both the eye and the ear have a great deal of preprocessing software that makes possible high-bandwidth information reception. We're talking the megabytes-per-second of information reception capability in your average human being. The computer, by contrast, has lousy listening capabilities. The average person can, with mouse and keyboard, enter only a few bytes of information per second.

Thinking Here's another area where the human outstrips the computer, but not so flagrantly as with listening. The computer can indeed think, and in some dimensions of thinking – such as arithmetic computation – greatly outstrips the human. But in a great many other areas, such as pattern recognition, the human has a huge advantage over the computer.

> Computers have lousy listening capabilities. The average person with mouse and keyboard can enter only a few bytes of information per second

Speaking Here is the one area where the computer approaches the capabilities of a human. At my best, talking and gesticulating, I'm able to generate Mbs of information per second. A computer can't reach that output rate yet, but it's getting close. A fully animated display with sound or music gets us up into the Mbs/second range.

Considering these three together, it should be obvious that the greatest source of asymmetry lies in the area of listening, and the least lies in speaking. This explains, to some extent, the design style of so many games currently on the market. Most listen poorly and speak well. The typical product gives the user very little to say or do, and then hoses him down with Mbs of audio-visual extravagance. Thus, despite my incessant carping about excessive speaking and insufficient listening, the current level of interactive design reflects the asymmetric strengths of current home computers and consoles.

But we must remember that there are two ways of looking at the problem of asymmetry: the ideal and the 'grain of the medium'. The ideal represents what we really ought to do, the grain represents the natural strengths and weaknesses of the medium. Good design pursues the ideal while acknowledging the grain. The ideal of good interactivity is equal emphasis on listening, thinking, and speaking. After all, the quality of a conversation is based on the extent to which each of the conversationalists listens, thinks, and speaks. If either person puts more emphasis on any one of these areas, then the conversation as a whole suffers. In the same way, participants in any interaction must focus equal energy on all three areas to do the best possible job.

But we must also acknowledge the pragmatic issues, too – the computer is a lousy listener and a fascinating talker. It is easy to get the computer to speak well and very difficult to get the computer to listen well. Therefore, we must expend more effort on the problems of designing good listening than on designing good speaking. This is the only way to achieve an effective compromise between the pragmatic considerations and the design ideals.

To see how well we are doing, it is necessary to examine the

success the industry has had in designing good listening. I have to say, we're doing a terrible job! A good way to assess the quality of the listening experience is to translate the commands of the game into verbs. For example, *Doom* offers just a few basic verbs: turn left, turn right, go forward, go backward, slide sideways, fire, change weapons. That's *Doom*'s entire vocabulary. Not very impressive in terms of quantity of listening, is it? Or consider another big hit of the last year, *Myst*. This game offers an even more limited set of verbs: 'go where I clicked', and 'operate whatever I clicked upon'. True, these verbs can mean a variety of things given the visual context. Thus, 'operate whatever I clicked upon' can mean 'open the door' or 'throw the switch' or a variety of other things. So it's not quite fair to say *Myst* has only two verbs. But it certainly doesn't have very many.

What's particularly sad about this is the situation has become worse, not better. In the last year or two we've seen an explosion of multimedia products whose listening powers are even worse than those of most games. Many of these games have little more than 'go to the next image' and 'go back to the previous image', plus a few embellishments.

What do we need? Obviously, we need to improve the listening skills of our designs. What, precisely, does this entail?

The brainless answer is that we need richer languages of expression for the user. We've got to give him better things to say, and above all, more verbs. But this raises a nasty problem: how do we increase the number of verbs without losing the audience in a maze of restrictions? I am reminded of *Civilization*, a game with a fairly rich set of verbs that also sported a 200-page manual. It would seem that we have a dilemma here – either we give the user a paltry verb set or we bury him or her under a weighty tome.

There are three ways out of this dilemma, and we'll end up using some combination of all three. The first is to build audience expectations of the user interface. This is something that Macintosh users all understand, and *DOS* users just never got. The Macintosh has a large array of user interface standards that all programs (except those from Microsoft, naturally) adhere to. For example, Command-Q will always quit an application; Command-W will always close the topmost window; Command-P prints the document and Command-S saves it. The close box, scroll bars, and menus all have defined meanings that every Macintosh user quickly learns. The result is that Macintosh users can pick up a new program very quickly.

As game designers, we must recognise our own responsibilities here. Whenever somebody designs a game that has its own custom version of scroll bars, or close boxes, or whatever, that diminishes the standard. So it's important that we all hang together on user interface issues. If there's a standard way to approach a problem, use the standard way. Rely on your own custom design only if you can prove to a sceptical observer that it's superior to the standard method.

The second method is to rely on the natural linguistic skills that all people have. Use linguistic structures where possible. Think in linguistic terms. What's the subject, the verb, and the direct object of this command? Present your interface in linguistic terms.

The third method is to throw some computer resource at the problem. After all, we have no difficulty throwing computer resource at graphics-based problems. We use Mbs of CD space, and megacycles of CPU time to come up with the sexiest graphics. Why not throw some of that resource at the problem of listening? For example, if you used a menu structure that presented the player with English sentences describing the player's options, then you could offer the player about a million different verbs with the expenditure of only 30 Mbs of CD storage space. Think of what you could do with a million verbs! That's twice as many verbs as there are words in the English language. True, there are other problems to consider (who's going to design all those verbs, for one), but the basic point – that expenditure of resource opens up doors – remains valid.

Finally, a thought on the copy that you find written on game boxes... Jason Kargill sat alone at a table in the darkest corner of the little cantina. His fingers nervously caressed the handle of the laser blaster strapped to his hip. Through eyes narrowed to slits he watched the steady stream of customers coming and going. They widened slightly when the Zlarix walked in. So this was the one he'd been waiting to see all this time. This was the partner who would teach him to be a... Starlane Raider!

How many times have we all seen opening lines like these on our games? Dripping with purple prose, the text shouts romance, excitement, and adventure. It makes you want to buy that game, rush home, and enter the colourful world it promises – which, of course, is the whole purpose of the prose.

There's a problem with this, though. Have you ever noticed that the game you play really has nothing whatever to do with the text? You don't get to nervously caress the handle of your laser blaster; instead, you jerk your cursor all over the screen and blast hundreds of little green monsters over and over and over. You don't narrow your eyes to slits as you watch whomever. You don't betray your expectation when your new partner walks through the door; instead, you wander through long, confusing mazes in search of obscure puzzle parts.

Do you see the difference between the purple prose and the game? The purple prose drips with overdone emotion, but the game doesn't have any emotion, just a lot of logic and action. Isn't that odd? If our opening text were more honest about gameplay, it would read like this... Jason Kargill looked in front of him. Streams of odd-shaped blue things with big teeth appeared. He pointed his laser blaster frantically around the room, blasting them. They kept coming, bigger and faster, and, he kept blasting. Then there were green things with bloodshot eyes, and he blasted them, too. After a while, they stopped coming, so he walked into another room where he saw a bunch of orange things with claws, he blasted 30 or so, then walked into another room...

The typical game gives the user very little to say or do, and then hoses him down with megabytes of audiovisual extravagance

This would be a lot more honest, wouldn't it? This would really communicate what the game is about. So why do we need that other kind of introduction? For what deficiency in our games does the original text make up? Games players are really like little kids on a tricycle. We pedal our tricycle furiously, shouting 'Vroom!' at the top of our lungs, and 'Here comes the fire engine!' It's all good fun.

What's really odd, however, is that as we continue to grow older, instead of actually building fire trucks, we just keep building bigger tricycles...



Though perhaps difficult to believe nowadays, there was a time when programmers enjoyed true fame within the videogaming fraternity. **Tony Crowther** was one such figure, a codesmith who, alongside figures such as **Jeff Minter** and **Archer Maclean**, was creating games almost single-handedly.

'Life was a lot simpler then,' admits Crowther. 'Projects were smaller and faster to write – after all, we only had 64K to play with. But the industry has changed for the better – only the other day I was looking at some old projects... and aren't they bad!'

Crowther made his name with the C64 conversion of *Wanted: Monty Mole*, and developed his craft with original 8bit titles such as *Suicide Express* before moving on to the Amiga in the late eighties to create the award-winning *Captive*. More recently he's designed the 3D engine used in Gremlin's latest batch of PC and console titles, including *Realms of the Haunting* (see page 45), which he considers to be the best thing he's worked on. 'The stress levels are increasing on *ROTH* – the project is huge, with so many disciplines to pull together, but the final result is guaranteed to impress everyone.'

Despite his endorsement of modern videogames, co-workers still recognise an eighties coder when they see one. As **Tim Heaton**, software manager at Gremlin, told **Edge**, 'He works all night and rarely gets up before lunch time. He's definitely from the old school of programmers.'

So what keeps 'old school programmers' happy these days? 'A good game for me is one I can live in. The trend started with *Dungeon Master*, and forced me to play all the good clones. The last game I enjoyed was so good I've forgotten the name. It was a 3D role playing game, and kept me happy for days...'

Tony Crowther

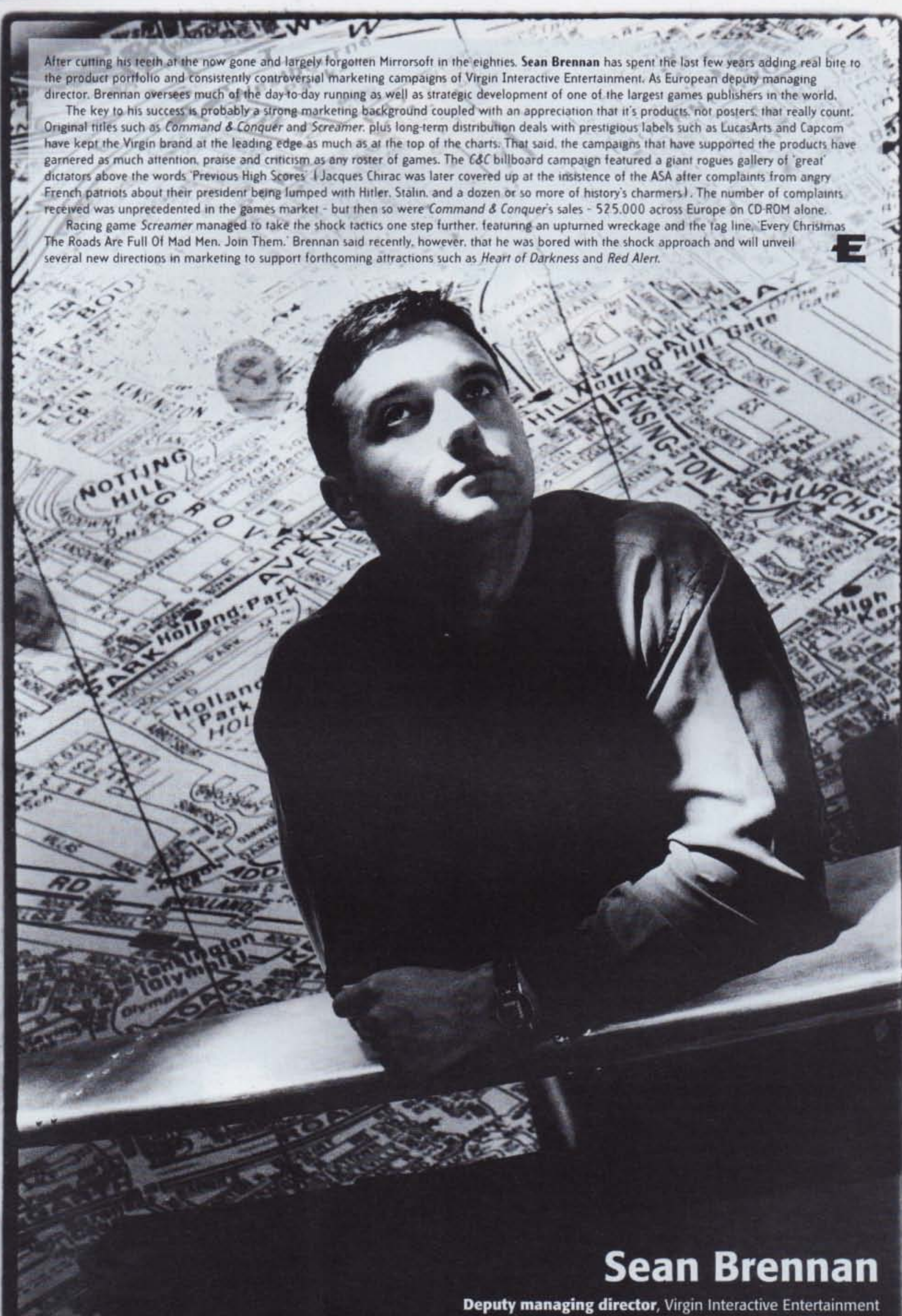
Programming legend, Gremlin Interactive

Photography: **Jude Edginton**

After cutting his teeth at the now gone and largely forgotten Mirrorsoft in the eighties, **Sean Brennan** has spent the last few years adding real bite to the product portfolio and consistently controversial marketing campaigns of Virgin Interactive Entertainment. As European deputy managing director, Brennan oversees much of the day-to-day running as well as strategic development of one of the largest games publishers in the world.

The key to his success is probably a strong marketing background coupled with an appreciation that it's products, not posters, that really count. Original titles such as *Command & Conquer* and *Screamer*, plus long-term distribution deals with prestigious labels such as LucasArts and Capcom have kept the Virgin brand at the leading edge as much as at the top of the charts. That said, the campaigns that have supported the products have garnered as much attention, praise and criticism as any roster of games. The *C&C* billboard campaign featured a giant rogues gallery of 'great' dictators above the words 'Previous High Scores' (Jacques Chirac was later covered up at the insistence of the ASA after complaints from angry French patriots about their president being lumped with Hitler, Stalin, and a dozen or so more of history's charmers). The number of complaints received was unprecedented in the games market - but then so were *Command & Conquer*'s sales - 525,000 across Europe on CD-ROM alone.

Racing game *Screamer* managed to take the shock tactics one step further, featuring an upturned wreckage and the tag line, 'Every Christmas The Roads Are Full Of Mad Men. Join Them.' Brennan said recently, however, that he was bored with the shock approach and will unveil several new directions in marketing to support forthcoming attractions such as *Heart of Darkness* and *Red Alert*. ∎



Photography: **Martin Burton**

Sean Brennan

Deputy managing director, Virgin Interactive Entertainment

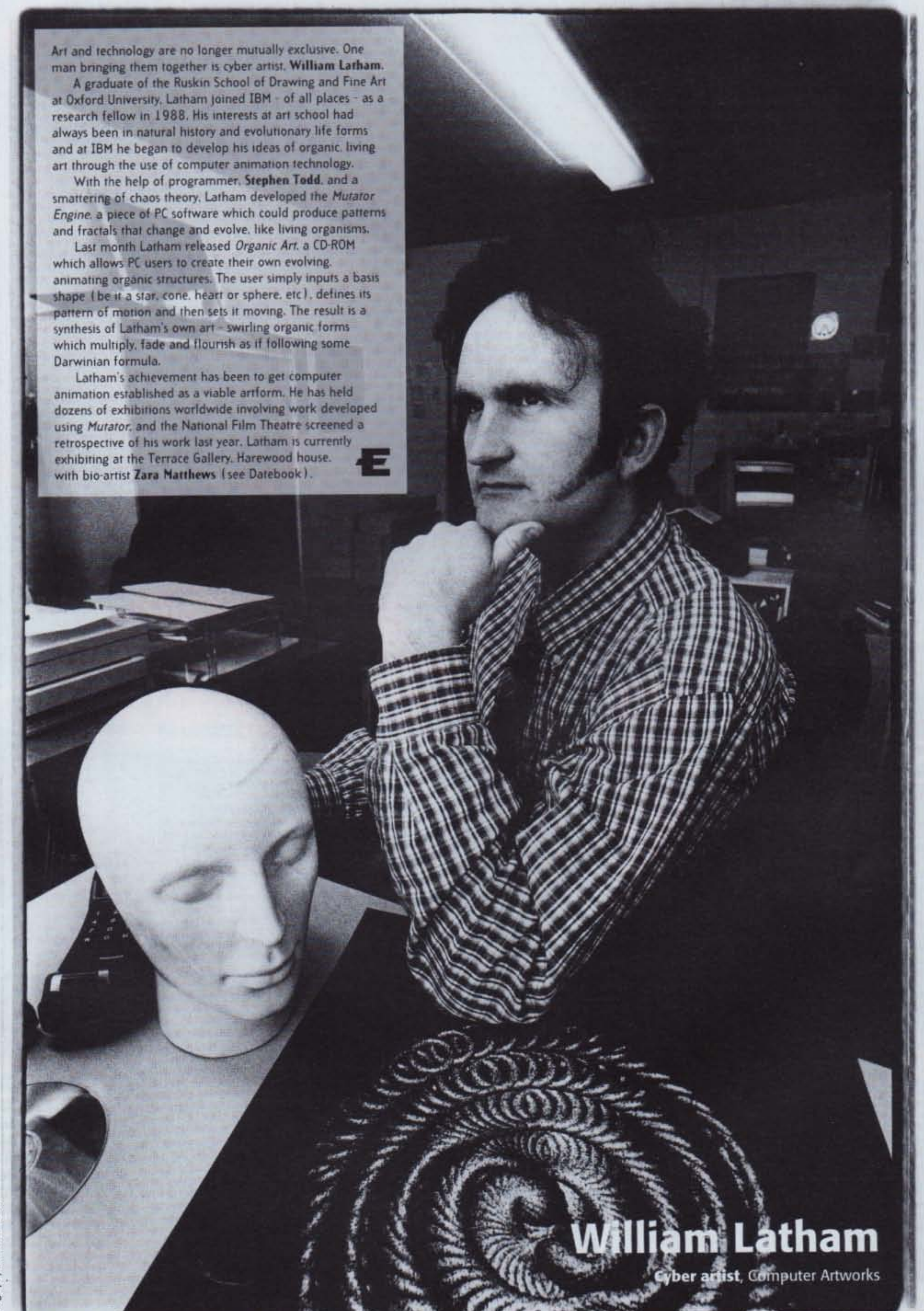
Art and technology are no longer mutually exclusive. One man bringing them together is cyber artist, **William Latham**.

A graduate of the Ruskin School of Drawing and Fine Art at Oxford University, Latham joined IBM - of all places - as a research fellow in 1988. His interests at art school had always been in natural history and evolutionary life forms and at IBM he began to develop his ideas of organic, living art through the use of computer animation technology.

With the help of programmer, **Stephen Todd**, and a smattering of chaos theory, Latham developed the *Mutator Engine*, a piece of PC software which could produce patterns and fractals that change and evolve, like living organisms.

Last month Latham released *Organic Art*, a CD-ROM which allows PC users to create their own evolving, animating organic structures. The user simply inputs a basis shape (be it a star, cone, heart or sphere, etc), defines its pattern of motion and then sets it moving. The result is a synthesis of Latham's own art - swirling organic forms which multiply, fade and flourish as if following some Darwinian formula.

Latham's achievement has been to get computer animation established as a viable artform. He has held dozens of exhibitions worldwide involving work developed using *Mutator*, and the National Film Theatre screened a retrospective of his work last year. Latham is currently exhibiting at the Terrace Gallery, Harewood house, with bio-artist **Zara Matthews** (see Datebook).



William Latham

Cyber artist, Computer Artworks

Photography: **Martin Burton**

An audience with... Charles Cecil



When **Charles Cecil** first started playing around with computers, they were barely more complex than calculators, with touch-pad keys and little more than 1k of RAM. Revolution was nothing more than a twinkle in the eye, until the Atari ST arrived, and dragged the home computer market into the nineties. *Lure of the Temptress* was released by Virgin in 1992, and Revolution was born, as it happens, from the ashes of Mirrorsoft, which sank along with its owner, media tycoon Robert Maxwell. Two years later it scored another hit, this time on the PC, with the Bladerunner-esque *Beneath a Steel Sky*. Two years down the line, Revolution is putting the finishing touches to what it hopes will be the adventure game of the year, *Broken Sword*. **Edge** met up with Charles Cecil, company director, at the Revolution office in York.

From squeezing a chess game out of 1k to spending £1million on its latest project, the team behind *Broken Sword* has seen all aspects of videogaming. Edge talks to its director

Edge You've been in the games business since it began in this country. How did it all start for you?

CC When I left school in 1980 I was sponsored by Ford to go into engineering. I met **Richard Turner**, who had just set up a company called Artic Computing, and he'd written a few games for the ZX80 and

ZX81. We wrote some superb games for it, including *ZX Chess* (in 1k). Can you believe it? 1k! We also wrote a *Galaxians* game. We called it that, too, as you didn't have to license anything in those days. You just called a game anything you wanted. Then I started writing adventure games - *Ship of Doom*, *Espionage Island* and *Inca Curse*, and they sold incredibly well. We used to ring up WH Smiths and say, 'How many do you want to buy?' and then we'd call up the duplicators and tell them how many we had sold, and they'd make that many. No overheads. It was great. When the Spectrum 48k came along, you could sell about as many as you could make.



Edge What happened to Artic then?

CC For one reason or another, the company was talked into going into a TV advertising campaign, and the whole thing was a complete disaster. The adverts were dreadful, and it cost an absolute fortune. Artic recovered, but by then the Oceans, the US Golds, and everybody else came in with a lot of money and a lot of professional marketing, and changed the industry completely. In 1986 we decided to call it a day. After that, we were approached by US Gold to do a game called *World Cup Carnival*. The packaging was superb, with little flags and wall charts and everything, but unfortunately the game really wasn't as good as the packaging. No review copies were sent out until it was on the shelves, and it sold very well. Artic was then turned into a kitchen design company by Richard.

Edge Eventually, you ended up as a Development Manager at US Gold. How did you get from there to Revolution?

CC That was in 1990. Development wasn't seen as particularly important then. Sales and marketing were of far greater concern. Then Activision offered me a job, stressing the importance of development. We did a really nice 3D game called *Hunter* on the ST and Amiga. After that, the US office went bankrupt, which gave me the chance to set up Revolution, with our own money.

Edge A little different to the way it's all done now. How do you think that has changed?

CC It's far tougher now than it was then. In those days a game cost $30,000 and now it costs a million. You need all the best musicians, the best artists and the best people to do it. *Broken Sword* cost a million. But then, there's more animation in this game than in a feature-length Disney cartoon. For the music, we're working with **Barrington Phelong**, who did the music for, amongst other things, Inspector Morse. A very eminent musician, he's writing the equivalent of three film scores' worth of music for the game. The sound effects are done by a company that did the sound for all the Peter Greenaway films. Gone are the days of ringing up some guy in his bedroom and asking him to create a few sound effects on his Casio organ.

Edge If you could sum up the Revolution philosophy, what would it be?

CC To write games that play really well, and support them with high production values. Completely the opposite of the interactive movie. When we see interactive movies, we're slightly ashamed that we write computer games.

Edge What would you say is the problem with them?

CC People who write interactive movies feel ashamed that they're writing videogames, and would rather be making films. At Revolution, we're completely the opposite to that. We're really pleased with what we produce and we want to make it better by using the talents we can find from the film industry to support the gameplay. Our layout guy came from Don Bluth, for example.

Edge How is this reflected in the final game? Can we tell?

CC We had long discussions about how best to make it look as good as possible. There were certain things we went for, such as a very low viewing angle, to make things more dramatic, because the higher the viewing angle, the less impact the scene will have. Obviously, what we really wanted were views from underneath the characters, but if you think of a sprite enlarging and contracting as it goes in and out of the screen, you can't change the perspective, only the size of the sprite, unless you're working in 3D. We're pretty close to doing it, though. We also decided to have parallax scrolling, because it brings the screen alive. That's unique in this industry in adventure games.

Edge Do you see Revolution trying 3D sometime soon?

CC We will, ultimately, go down the 3D route, but we are currently aiming for a very specific group of people and we hopefully appeal to the hardcore gamers, but also to a wider audience. I don't think realtime 3D, as it stands at the moment, creates graphics that look good enough. Great for hardcore gamers, but to the wider audience, we don't think it's good enough. Yet.

Edge Do people need a specific reference point to enjoy games, if they're not your hardcore gamers? *Broken Sword* is easy to relate to, for example, because it's like a cartoon, something we're all familiar with.

CC I don't think it's so much a specific reference point. In terms of games, there are three, what you might call, reference points. They are the sprite, the cartoon and the 3D model. The 3D model, at the moment, does not look convincing enough, and the sprite looks too pixellated. What we've done is move the sprite into high-res and merged it with the cartoon. There is a fourth one, and that's real actors, but that ruins everything. I think that everyone, for a while, thought that was the answer, but it's not. Nobody can come up with an interface that delivers good gameplay. *Under a Killing Moon* didn't work, neither does *11th Hour*.

People who write interactive movies feel ashamed that they're writing videogames. We're completely the opposite to that

Edge Delphine's *Fade to Black* had a pretty good stab at combining the two, don't you think? It was 3D, but had a very cartoon sort of a feel.

CC I quite liked the game, but I felt that one thing they did completely wrong was in the use of the moving camera. They did it

Continued next page

Continued

because they could, not because it was needed. We've all been brought up with Hollywood, and we all know that when a camera moves, it means something, and then when you get a bit of music it means something, and what they had were camera moves where we were trained, by Hollywood, to expect something to happen. But then, in the game, nothing did happen. After a while, it gets on your nerves. We've used people who understand the language of film, who understand what it means to do something like that, so that when we do it, it's appropriate.

Edge What do you think of some of the other UK software houses? Who do you have the most respect for?

CC You have to say Bullfrog. Although, Peter has never really surpassed *Populous*. I think that was a work of genius. Pure genius. That was creating a genre - the god game. That was phenomenal. The other company I really like is Sensible, because they don't really give a shit. They were the real kings of the Amiga, and they're trying to crack the PC now, but they always have fun, and they always choose gameplay over graphics.

Edge What about worldwide?

CC LucasArts, of course, because of their extremely high production values. But I do think that when you look at *The Dig*, you realise they haven't really been keeping up. Also, I think *Full Throttle* didn't really deliver either. *Monkey Island* and *Day of the Tentacle* were ground-breaking adventure games, and they really pushed the genre forward. I don't think *Full Throttle* did that.

Edge With *Broken Sword*, you're really going head to head with LucasArts. What makes Revolution better?

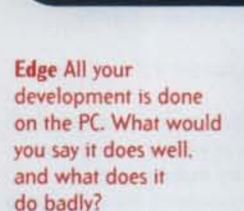
CC LucasArts are very good at that jokey, slightly ludicrous game. If you want something that's still humorous, but has got a more serious story, then you come to us. I think there's no doubt that, technically, we're way ahead of them, because they haven't even done anything in hi-res yet. I think our interface is better, and the story, too, is more complex and detailed. You need to judge for yourself whether the animation is better, naturally.

Edge What would you say are the specific strengths and weaknesses of UK developers?

CC We have excellent gameplay, but we don't have the production values of the Americans. That's number one. The second point is that we don't polish the games enough. People here seem prepared to accept something that isn't quite polished, whereas in the States they just won't accept it - they would rather buy a highly polished, inferior game than a slightly rough, superior game. With *Broken Sword*, we could play the game from beginning to end before Christmas, and we've spent the last few months polishing the game. If we're not happy with something, then we go back and we do it again until it's perfect. Anyway, we want the Americans to buy it too!

Edge What do think of the hype that surrounds games such as Quake?

CC Well, look at *Rise of the Robots*, and you can see how well a game can do on just hype alone. It's very important. A statistic that I heard the other day said that something like the top 1% of games account for over 40% of the sales. Even if you've got a really good game, if it's not perceived to be in that top 1%, it's not going to sell.



Edge All your development is done on the PC. What would you say it does well, and what does it do badly?

CC There are no standards. That's the biggest problem with it. *Windows 95* is great for us, although we're a little disappointed that the take-up has been so low. The *DirectX* stuff is great, and it will help to bring about a standard for developers to work with. Another problem with the PC is that it can be very difficult to get games to run, due to configuration problems which, again, *Windows 95* should put a stop to.

Edge If you could change the PC yourself, what changes would you make?

CC Well, there are two things I would change - the processor and the video card. I'd like to bring the two together more. At the moment, you can buy a Pentium, thinking your games will fly, without realising it may have a terrible video card. That's where some companies cut costs. There should be some standard to bring them together, so that when you buy a fast PC, you're also buying a fast graphics card.

Edge How would you relate the specific advantages of the PC to *Broken Sword*?

CC We really do push the Pentium processor. To get the best out of the game, you really need a Pentium. We've got these huge parallax layers that demand a lot of processor time. We're using the PC to write something that looks as good as a cartoon, with so many animations and layers. The PC has the RAM to do all that in realtime without flinching, and adventure games are something that it does particularly well.

Edge Will you be producing a console version of the game?

CC There will be a PlayStation version. The only real difference will be the resolution, and other than that it should be equally as good. It's not just a question of porting it over, either, because I don't think PlayStation owners will accept just a straight port. So, we've given a lot of thought to how best to control the game, because you can't just have the joypad emulating the mouse. You've got to be smarter than that. The PC and the Mac are certainly the lead versions, though.

Edge Is it harder for you to develop for the PlayStation than for the PC?

CC No, it's remarkably easy. Sony are very supportive. You can call up their technical people who, if they can't help you over the phone, will take your code and look it over, and come back to you.

Edge You're not going to be doing a Saturn version, though?

CC I'm not sure I should answer that one. We believe the Saturn market is more directed towards shoot 'em ups and beat 'em ups, and is not really the right market for this kind of game. *Broken Sword* is a complex game, with an involving plot. We think it's ideal for the PlayStation market.

Edge How long do you spend preparing the



storyline and plot for an adventure such as *Broken Sword*?

CC Ages. To us, the story is absolutely vital. That and character development. Both myself, and the lead writer, **Dave Cummins**, have attended a film-writing course about how to write scripts and stories. How to send the right signals. We also had our script read through by a senior BBC script-writer. I think that what we're writing is the next generation of story telling. I think we should compete directly with cartoons.

Revolution's potentially LucasArts-beating *Broken Sword* is a hi-res, parallax-scrolling point-and-click arcade adventure

Edge It's quite an interesting exchange. FMV games seem to have Hollywood people trying to learn game techniques, and here we have gamers learning Hollywood skills.

CC Yes. But if you want to watch a movie, you want it to just lap over you. Interactive movies will fail because people want to be told a story. They don't want to interact in that way. I have heard people say that stories are inappropriate for games, but we're telling a very strong story that would stand up equally well as a film or a book or whatever, and present it in a different way. We're adding to the gameplay with our knowledge, not detracting from it.

Edge What do you gain from not using full motion video?

CC We have tens of thousands of sprites in *Broken Sword*. You have the general animations, where you're walking around, and then you go into special sequences, and to film all that would be impossible. There are too many combinations. What you need is the flexibility to be able to draw the inbetween frames and by using live actors, you lose that flexibility. It's something we're particularly proud of, the way we have generic animations seamlessly linked to hand-drawn cartoon animations so that, to the player, the whole thing just flows.

Edge Wasn't that tricky to develop?

CC It was, but it's something we've been working on all the way through, since *Beneath A Steel Sky*. A lot of our tools are written specifically to bring the two together properly. With *Steel Sky*, we'd written a great game using 'mega-characters', as we call them. Characters that exist on the screen, and that's the key to our whole system. When they walk away, you can click on them, and they'll turn around and walk back to you. Everyone else, without exception, has sprite sequences, so a guy walks off and he's gone. If we'd have tried to write *Broken Sword* from scratch, we'd have been in trouble. There would be so much to learn.

Edge *Broken Sword* has a pretty complex plot, based on the Knights Templar story. It seems a very popular idea, what with Mindscape's *Azrael's Tear* and Infogrames' *Timegate* doing the same thing. Who started it?

CC We did! Three years ago, in an interview with Generation 4 in France, I very foolishly mentioned that we were writing a Knights Templar game. I have no doubt at all that it was copied from there, but because we've taken so much time over it, making sure it's right, we've been beaten to it. We've based the whole story on the historical facts, after doing painstaking, but extremely interesting, research into the Knights Templar legend.

The story is absolutely vital. We're writing the next generation of story telling. I think we should compete directly with cartoons

Edge How will *Broken Sword* be different from your previous games?

CC The puzzles are a lot better, for a start. They're all completely logical to the plot, so no ludicrous brain-teasers. I've never forgiven *Monkey Island* for using the compass on the key – there was a key that you should have been able to reach, but you had to use the compass to get it. Terrible.

From the layout point of view, we've got away from boxes within boxes, and they're all drawn by very experienced artists, and it's all in hi-res. All the screens have got their background parallax layers and their foreground parallax layers, and they look amazing. On the animation side, there's a lot more complexity. Everything that you do has its own animation, unlike other games, where you just have a 'picking up' sequence, for example. And the music, of course.

Edge From Barrington Phelong...

CC Yes. He's great, because his kids are really into computer games, and he's seen a lot of them. He couldn't work out why the music is always so awful for every game he's played. So, what we've explored here is interactive music, where you can send clues to the player through the mood of the piece. For example, the first time you explore the sewer, you get a menacing music, but when you come back later, you don't need that, because it's familiar now. The music changes in accordance with the player's knowledge and actions.

Edge *Broken Sword* looks very much like a cartoon. Does it worry you that it might be considered too 'young' for the PC market?

CC Well, that's where the marketing comes in. It's a very good point. Akira was a phenomenal cartoon, and before I saw that I thought that cartoons were for kids. I think that, through anime, we've been educated that cartoons can be for adults. We need to ensure people don't assume it's just for kids.

Edge What's next after *Broken Sword*?

CC To look very critically at *Broken Sword* and say, 'What can we do to take this to another level?' What we're not going to do is churn out a load of *Broken Sword* spin-off games. Every time we do a new game we want it to be that much better than the last one. A combined use of 2D and 3D is one way to go, certainly. Exploiting the new graphics cards that are coming out, and the *DirectX* technology.

Edge Will you be developing for the Nintendo 64?

CC I think everybody laughed when they announced the system would be out for Christmas 1995, and now it looks as if we'll be lucky to see it by this Christmas. We were talking about hype earlier, and all of these consoles put so much hype about, and I'm so long in the tooth now, I don't believe a word of it until I see it.

Super Mario 64

Nintendo's premiere entry into the 'next generation' of videogaming readies itself to destroy the 32bit opposition

***SM64* is easily the best example of how, when used cleverly, 3D technology can open up exciting new directions for gameplay**

Format:	**Nintendo 64**
Publisher:	**Nintendo**
Developer:	**In-house**
Release date:	**June 23**
Origin:	**Japan**

Just as the Electronic Entertainment Expo yielded the first hard evidence of a catalogue of Nintendo 64 software, more than anything it provided conclusive proof, if any were needed, that Nintendo's internal Japanese division makes the world's best videogames.

Almost by default, *Super Mario 64* became the game to illustrate this better than any other. Attending a press conference on the day preceding the show, **Edge** witnessed a candid and forthright demonstration of the work that has gone into creating what NCL chairman **Hiroshi Yamauchi** cited last November would be the 'best videogame ever created'. In direct contrast to previous NOA conferences, Nintendo hooked up a console to a giant videowall and left it to NOA employees from its internal 'treehouse' development division to take the game through its paces. Needless to say, jaws dropped, pupils enlarged and gasps of amazement issued from the crowd.

Succinctly termed 'a delightful videogame' by NOA chairman **Howard Lincoln**, the completed *Super Mario 64* is an astonishing achievement on many levels. Most significantly, it is easily the

The N64's hardware effects smooth out any pixellation, enhancing the cartoon-feel. As do neat touches such as Mario opening a lock (inset)





By jumping into this foreboding pool, Mario is transported to a new area of the game. The lighting on the rippling water is breathtaking







Notice how the distant pyramids in the desert do not have to be depth cued. Here the sands slide away beneath Mario's feet. A swooping vulture steals Mario's cap (right)







The versatility of the 3D engine can be seen in the vast array of events that fill the game world

best example of how, when used intelligently, 3D technology can open up exciting new directions for gameplay. This is no 2D game given a copious lick of texture-mapped paint, it is a fully fledged excursion into a truly immersive 3D world. Considering Nintendo has built its business working solely in two dimensions it represents perhaps its single greatest innovation.

As well as furnishing *SM64* with all the charisma, charm and immediate appeal of Mario games past, Nintendo has also managed to ensure fresh gameplay is at the core of its next generation assault. Utilising its new analogue controller, Mario is now more manageable than ever before. Nudging the central joystick slightly forward makes him tiptoe, while pushing it further still will make him walk and then run. This negates the holding down of a button for speeding Mario up as in previous games, making the control mechanism wonderfully intuitive and fluid. While the nuts and bolts of the gameplay remain true to the Mario lineage, the astounding execution makes this feel genuinely new and exciting.

For a videogames company with an almost anti-graphics philosophy, Nintendo has crafted *Super Mario 64* into a seriously beautiful game. No doubt with a bitter-sweet taste in its mouth from its US launch of the SNES five years ago (when Sega placed *Sonic the Hedgehog* side by side with the distinctly functional-looking *Super Mario World*), Nintendo has taken the time to make sure that its 64bit launch game eclipses the competition. Judged on almost every level, there's a world of difference between this and Sega's and Sony's own 3D platform contenders, *Nights* and *Crash Bandicoot*.

SM64's most immediate visual strengths are in the quality of its texture-mapping and colour resolution. Running at well over 30fps, the N64's screen provides a hi-res-like, despite the game running in the machine's lowest screen resolution of 256x224. The texturing itself looks far more impressive than when shown at the Shoshinkai show last November (some textures, such as those on the walls, have been completely redrawn) while the sheer scale of some locations is staggering. Nintendo has used large polygons (without any of the distortion seen on the PlayStation and Saturn) and the machine's 'load management' ability has been used to create a long and wide depth of field. Hence, many of the sections in *SM64* stretch far into the distance creating the illusion of large, unabridged

Nintendo has crafted *Super Mario* into a seriously beautiful game – the graphics simply eclipse the competition

Continued next page





Mario's adversaries of old make full three-dimensional appearances in *Super Mario 64*'s world. Big Boo fades in and out of view effectively as he prepares an attack (above left). A tethered Chomp bares its teeth (above right) as Mario traverses the game's eye-popping outdoor sections

Continued







***SM64*'s in-game camera is adjustable to provide the most convenient view of the action**

environments. This is the key graphical advantage that both *SM64* and *PilotWings* (see page 32) have over all PlayStation and Saturn software so far.

To illustrate this further, in one scene Mario enters an Egyptian pyramid to be faced with an enormous room (similar to those of *Quake*, although far larger) complete with high, inaccessible platforms. Rotating the camera from behind Mario's head allows the player to survey the vastness of the room while the N64's MIP-mapping and anti-aliasing allows distant objects to appear clear and detailed – in this case, a revolving stone wheel trundling along a high platform. Another section sees Mario running vertically down an enormous ravine as the camera pans far out to reveal its full depth with no obtrusive polygon build-up, just the entire scene. It's thoroughly stunning to watch. Of course, it's extremely unlikely that *SM64* uses all of the machine's advanced hardware features (certain effects engender a performance hit) but the sheer scale of the geometry being thrown around provides a scintillating glimpse of the power of the machine.

After the press conference **Shigeru Miyamoto** demonstrated some of the game's more curious elements. One brilliant section sees Mario agreeing to enter a race around the castle with a giant Koopa, only to succumb to some blatant cheating in the form of taking short-cuts. Koopa doesn't take such efforts lightly, even though he has his own routes for getting ahead. Miyamoto also showed the flexibility of *Super Mario 64*'s in-game camera and how the player can take full control to get a different perspective on the action. Unlike most games of this type, however, the camera has been programmed with an intelligence and respect for the player that has not been seen before (in the game the camera is held by Lapitu and he can be controlled with the N64 joypad's yellow buttons).

One brilliant section sees Mario agreeing to enter a race around the castle with a giant Koopa, only to succumb to some blatant cheating in the form of taking short-cuts

It was reassuring to learn that this promises to be the biggest Mario game yet, boasting up to 50 hours of gameplay (although theoretically it could be conquered in around one tenth of that time). A vast size indeed.

Of course the price of such size is an enormous memory requirement, and at 96 megabits (12 megabytes) *Super Mario 64* is already encroaching on the territory that SNK plodded through with its cartridge-based Neo-Geo system. As such, *Super Mario 64* is possible proof that genuinely outstanding N64 games will be difficult to pack onto the more modest 32Mbit and 64Mbit cartridges that Nintendo is currently touting to its third party licensees, and it's highly unlikely that any thirdparty will be able to match Nintendo's $70 price tag for such a large cartridge.





Without the need for motion capturing, the charisma of Mario exudes through the 3D engine. Skidding over ice causes puffs of smoke (right)

Sonically, *SM64* is hardly going to cause the same level of excitement as the rest of the game, but as with most Nintendo soundtracks, this one is exceptionally well suited. Supplementing the usual plinky-plonk tunes with more ambient orchestrations, the soundtracks may fall short of the quality included on most CD games, but due to their immediacy, variety and suitability to individual environments, they still manage to be more effective than most in-game tunes. Despite the reluctance of most musicians to program for internal sound chips (and in the Nintendo 64's case the number of channels apparently places a burden upon the CPU), chip-generated music, for its technical shortcomings, can still enhance the atmosphere of a game greatly.

Immediately the talking point of E[3], *Super Mario 64* has the potential to become a landmark in videogaming. Along with NCL stablemate, *PilotWings64*, it has managed to surpass all expectations, using state-of-the-art 3D technology to amplify the essential charisma of Mario. From the comical sight of Mario running around in tight circles, arms extended, to the sheer beauty on display in some sections, it's a game that cannot possibly fail to bring a smile to gamers' faces. **E**



Mario must try and traverse this spinning log (inset). If he falls off, however, rather than simply dying, he lands in a new section (main)

An interview with Shigeru Miyamoto



Following its main E³ press conference, Nintendo invited a select band of journalists to a private demonstration of *Super Mario 64*, and an audience with **Shigeru Miyamoto**. **Edge** was, of course, in attendance.

Q Although you've worked on *Super Mario 64* for a long time, you've also had to work on many other titles to ensure the system has a good launch lineup. How have you been able to manage the task of working on so many games at once?

SM I had a lot of trouble concentrating my efforts on *Mario 64* working as the game's director. Ever since I completed the *Zelda* game, my role at Nintendo has been more of a producer, supervising the different works in development. But when it comes to *Mario 64* I was actually the main director of the game, so if I stopped at some point all other work stopped simultaneously. This was not an easy task and when I come to think about future products, I believe I'll have to devote myself to a producing role mainly, rather than directing.

Q What were the biggest design problems converting *Mario* from 2D to 3D?

SM I don't want to criticise other game developers, but I believe that, other than in fighting and racing games, nobody is really meeting a 3D criteria. Many games are presented in 3D, but are, in fact, simply 2D experiences incorporating a lot of tricks to fool people into believing they are playing a 3D game.

I think one of the biggest difficulties in creating 3D is the viewpoint. Looking at the way the camera follows you in *Super Mario 64*, you would think it would be easier, but in fact, when you start a 3D game from the very beginning it's easy to get confused. For example, if Mario is in a maze, you can change the viewpoint to play the game from Mario's point of view, but if the camera is behind Mario and you are walking through a narrow passageway in a maze and you want to look in other directions, you have to realise the camera would hit the wall. It is frustrating for the player to realise they cannot change the viewpoint freely, even though 3D games must incorporate realistic camera movement – this kind of camera work is problematic when you start creating 3D games.



Q With *Mario* nearly finished, on what game will you be next concentrating your efforts?

SM I couldn't put everything into *Super Mario 64* that I really wanted, so we've decided to continue working towards a sequel which will take about a year-and-a-half at least – so please don't write many things about that [laughter]. Of course, *Zelda* is one of the things I would like to concentrate on, too, but before that we have *StarFox*, *Mario Kart*, and more immediately I would like to concentrate upon *WaveRace*.

Q How do you think *Super Mario 64* compares to previous Mario games? Is this its best one yet?

SM Personally, I'm satisfied simply because we have created something very new and unique, non-existent in the past. Concerning the game itself, I'll have to wait for the actual remarks to be made by the consumers. Talking about *Super Mario 64*, I believe we have just utilised only 60% of the whole capacity of the Silicon Graphics Nintendo 64 technology.

Q Now everything is moving in 3D on the Nintendo 64, will there be 2D games on the Nintendo 64 later on?

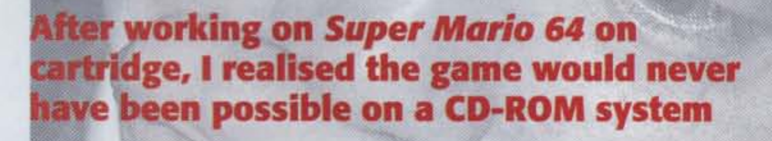
SM Yes, in fact, even though this is a 3D system, if you are careful enough you can make a 2D game – I'm actually working on a *Yoshi* title.

Q Since *Mario 64* is a cartridge game, was the lack of space a limitation?

SM To be honest, after working on *Super Mario 64* on cartridge, I realised the game would never have been possible on a CD-ROM system. I'm not speaking ill of CD-ROM at all, but this is my genuine sentiment.

Q Will the sequel use the forthcoming optical-based 64DD? And when you're talking about the speed advantages of cartridges, how will you cope with the slower handling of data by which the 64DD will be restricted?

SM We have not yet decided what format we will use for *Super Mario 64*'s sequel, but if we are going to utilise the 64DD system for this, yes, we will have to work on some of the problems on the transfer speed. Basically, however, the speed is decided not by the actual disk itself but by the RAM that is incorporated onto the hardware, and if we look at the Nintendo 64 hardware



system itself, it has an expansion memory slot, meaning most of the problems could be solved.

However, I still have to admit that the 64DD would not be as fast as the cartridge-based system and even though we understand the 64DD's loading time will be much shorter than other CD-ROM systems, still it cannot compete with cartridges when it comes to the *Mario* style of game. I think, however, *Zelda* would be good for the 64DD, considering the appropriate loading time.

Q Time magazine recently called you the Spielberg of videogames. What would you have done if you hadn't worked for Nintendo?

SM I chose to work for Nintendo simply because I thought Nintendo would be the kind of company to give me the opportunity to surprise people. More specifically, when I first saw the Rubik's Cube I was kind of jealous because that was the sort of thing I would have liked to have invented myself.

PilotWings 64

The long-awaited 64bit successor to Miyamoto's 16bit masterpiece arrives, and with it a whole new standard for realtime 3D graphics

Format:	**Nintendo 64**
Publisher:	**Nintendo**
Developer:	**NCL/Paradigm**
Release date:	**June 23**
Origin:	**Japan**





Some of the ground detail is quite staggering, while thermals are depicted by a mist effect (right). Jet-packing between buildings (left)

PilotWings for the Super Famicom was undeniably one of Nintendo's proudest moments. Despite its failure to tap the kind of massmarket enjoyed by the likes of *Donkey Kong Country*, et al, it was the first game to fully exploit the machine's Mode 7 background scaling abilities – and in this respect alone, nothing has come close since.

It's perhaps no wonder, then, that Nintendo – realising it would have its work cut out designing a worthy 16bit successor – saved the sequel for its next generation of technology. And true to form, it's a stunning piece of technical showmanship. First revealed during NOA's press conference prior to the E³ show, *PilotWings 64* is a fine example of how the efforts of Miyamoto and his designers have flourished with the creative freedom afforded by both the technology and the expertise of a leading 3D graphics company.

Towering snow-capped mountains stretch into the sky with perfect definition

Next to *Mario*, *PilotWings 64*'s simulation look may lack immediate visual appeal to the uninitiated, but, in fact, it is easily the most sophisticated of all the N64 games seen so far. According to NOA's **Darren Smith** (who worked as assistant director on the project alongside the Japanese team) it uses 'almost all of the features of the N64 hardware' resulting in the most impressive landscapes ever seen in a home videogame. Towering snow-capped mountains stretch into the sky with perfect definition, lush green hills are littered with detailed buildings, and Paradigm's custom effects such as water spray and flames embellish the complex environs with stunning, naturalistic detail.

What impresses most initially is the sheer scale and scope of the levels. While most sections are self-contained and can be viewed as a whole if the player flies high enough, there are also







One of the most impressive levels features a beautiful snowy mountain complete with an oil refinery and burning chimneys (top)

levels that cover over 50 miles of terrain, with famous US landmarks making up the scenery. The decision to direct the polygon count at modelling large areas of terrain was a bold one. Paradigm concedes that in the game's early design





Another example of the game's stunning level of detail – lift-off for a NASA space shuttle

stages there was a temptation to restrict the player's vision (rather like in *Panzer Dragoon*) so that sections could be overloaded with complex graphical detail. Nintendo decided wisely, however, to trade detail for speed so that a thoroughly encompassing 3D world could be created. For the most part *PilotWings 64* powers along at well over 20fps providing a level of smoothness rarely seen in games of this ilk. Occasionally, while flying through a particularly complex piece of scenery, the game engine will chug slightly, but for the most part, it's a massively impressive indictment of the console's ability to handle huge amounts of geometry.

NOA's Darren Smith worked alongside the game's designers in Kyoto, Japan, and also oversaw the involvement of 3D simulation specialists Paradigm in Texas. 'The cooperation between the two companies worked very well,' he told **Edge** at the show. 'They had experience



Skydiving, a favourite from the original game, makes it into the sequel

original game, with complete freedom of control over each of the environments, and once again it has augmented the structured game framework with dozens of curious features (such as being graded on the quality of photographs taken during flight) and bonus elements such as being able to take control of a frantic, flapping birdman.

The analogue controls are superbly implemented and give the player far greater flexibility and subtlety in controlling the craft







From left: flying through a canyon in the gyrocopter showcases the perspective-correct texturing; controlling the birdman is an incredibly realistic flying experience with unlimited flying time and no fuel to worry about; one of the later gyrocopter levels requires firing missiles at a giant robot

in the 3D simulation field while we had the games know-how.' The collaboration of both parties has since led Nintendo to elect Paradigm as its development tool troubleshooter for its third party ensemble – a solution that Paradigm is marketing as Fusion 64.

It's no secret that, in terms of the game design, Nintendo had complete control over *PilotWings 64*, with Paradigm mostly involved in taking advantage of the hardware. In structural amnd gameplay terms, *PilotWings 64* adheres strongly to the ethos of the





The depth of vision is one of *PilotWings'* most astounding features. The breaking waves on the sea (right) move slowly into the shore

As you'd expect, the analogue controls are superbly implemented on the joypad's stick and give the player far greater flexibility and subtlety in manipulating the various craft. As with the original game, though, hang-gliding and skydiving remain the most fascinating to control due to the player being at the mercy of the elements. With the wind rustling from one speaker to the next and some appropriately chilled music over the top (although some tunes are rather cheesy), there's an ambience in *PilotWings* rarely found in modern videogames.

As an N64 launch game, *PilotWings 64* should turn out to be an ideal compliment to *Mario*. While both games rely on cute characters, the realism and subtle charm of *PilotWings* provide a direct contrast to *Mario*'s outlandish and colourful cartoon world. In delivering an experience far removed from most console games it looks destined to be seen as another lesson in design from videogaming's true masters.

Destruction Derby 2

With high-speed thrills and metallic carnage, the original *DD* should have been the perfect racer. Its sequel is set to make amends

In *DD2*, the tracks aren't only wider, they're also more interesting, with hills, jumps and high-speed banks

Format:	PlayStation
Publisher:	Psygnosis
Developer:	Reflections
Release date:	1996 Q4
Origin:	UK

The original *Destruction Derby* appeared relatively early in the PlayStation's life and, like Saturn *Daytona*, suffered from its development team being put under the cosh to deliver the goods within a tight time frame.

The idea behind the title was perfectly sound: *DD* encouraged players to smash and scrape their way around the track, instead of having to obsessively avoid contact with other cars. It had the potential to be very entertaining, and a great release for those suffering from advanced road rage, but, during development, severe design mistakes were made – design mistakes which *Destruction Derby 2* seeks to rectify.





Destruction Derby 2 **features wider tracks to cut down on repetitious, unnecessary collisions. Circuits also feature hills and jumps**

The fact that *DD*'s tracks were too narrow was one universal complaint the title drew from its audience. It's all very well when drivers choose to crash into other cars, but when it's constantly unavoidable, and causes players to lose races time and time again, it is totally frustrating. In *Destruction Derby 2*, the tracks aren't only wider (potentially allowing for higher speeds and more exhilarating gameplay), they're also more interesting, with hills, jumps and high-speed banked corners.

The car dynamics in *DD2* have been improved and each vehicle includes realistic handling and steering. Slides feature frequently





***Destruction Derby 2*'s designers have added to the scenery, making the backgrounds more impressive. Gameplay, too, has been tweaked, following *DD* focus group feedback**

Collisions now feature realtime flips, rolls and cartwheels, which should look incredibly dramatic

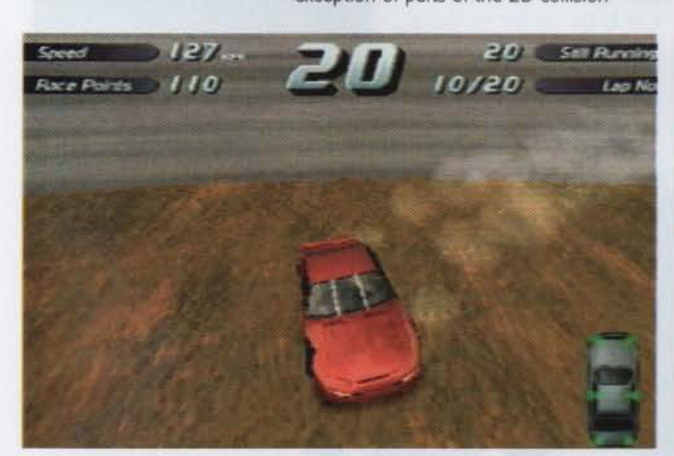
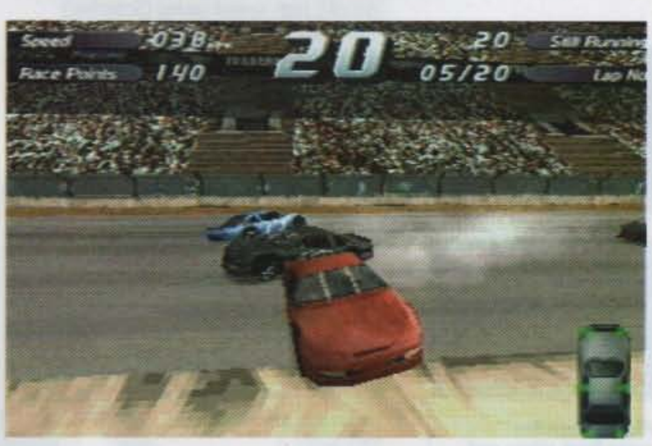
Another key complaint was that the cars in *Destruction Derby* handled badly and couldn't perform the kind of power slides which contributed so much to the popularity of *Daytona* and *Ridge Racer*. It's something else that *DD*'s designers have looked into and, consequently, they promise realistic suspension and steering to endow each car with more plausible performance and on-track behaviour.

But not all *Destruction Derby* commentary was negative. Its crashes looked great and they have been improved yet further for the sequel. Collisions now feature realtime flips, rolls and cartwheels, which will give the game an incredibly dramatic feel. There is also a new range of crash effects, such as sparks, explosions and fires, and 'real' debris has been included so that car wheels, bonnets and boot lids can fly off and litter the track. For those obsessed with crashes, there's even a replay facility where the best collisions can be edited and viewed over and over.

Technically, *DD2* is a complete reconditioning of the original. As Reflections' **Martin Edmunson** states, '*DD2* has been so extensively overhauled that it actually feels like a new game, not just the "same game with new tracks" which many sequels are. With the exception of parts of the 2D collision maths, nothing was carried over to the sequel. The main game engine had to be rewritten to cope with streaming in the larger tracks, and the car dynamics re-designed to handle banked corners and jumps. Obviously the collision routines had to be extended to allow cars to flip and roll.' *DD2*'s programmers are also boasting a better understanding and more efficient employment of PlayStation hardware, which will no doubt assist the addressing of mistakes made in the first title.

Gameplay has also been overhauled. There is now a pit feature which allows players to repair damaged vehicles and re-enter the race, no doubt lessening the annoyance factor that accompanies getting smashed off the road. Furthermore, Reflections' designers are promising a new range of racing options, including the 'Stunt and Smash Up' construction set where players can set up and choreograph their own daring stunts and collisions.

Destruction Derby was one of those games where everyone who saw it said, 'it could have been a classic, but...'. If the gameplay, track and car handling modifications to *DD2* meet expectations, Psygnosis may be about to release the first-class game it should have delivered a year ago.

The game includes several interesting new game options, including arena-style competitions (left) and more traditional circuit-based races (right). Crashes have been improved since the original *Destruction Derby* – high-speed collisions now produce sparks, flames and flying debris

Terminus

The prolific Scavenger has more titles prepared to accept the monicker 'state of the art'. But will gameplay match graphics?





Kinky rubber wear may well form an important part of the fetish-inspired *Terminus*





The dark, dank locations and Mad Max costumes hint at a sinister sci-fi atmosphere for *Terminus*. Scavenger's renowned realtime lighting abilities come into play, too, producing some marvellous shadowy effects

Format:	**PC CD-ROM**
Publisher:	**Scavenger**
Developer:	**In-house**
Release date:	**TBA**
Origin:	**US**

Scavenger's concept of dividing itself into small self-sufficient programming groups, each working on its own project, seems to be paying off – at least in terms of diversity.

A far cry from underwater shooting (*Amok*), high speed racing (*Scorcher*) and mediaeval swash-buckling (*Into the Shadows*), *Terminus* is a futuristic 3D action adventure which apparently takes fetishism as its central theme.

In terms of visual style, the game appears to be aiming for a Bladerunner/Akira look. The locations are shadowy, crumbling cityscapes and rusty industrial complexes, each using beautifully low-key, realtime lighting, making for some marvellous shadowy scenarios.

If the 3D models **Edge** has seen are anything to go by, this gloomy metropolis is inhabited almost exclusively by leather and rubber clad females – perhaps providing the fetish aspect of the game. The character design is truly incredible, in many senses of the word, but hardly likely to challenge the myth that all videogames are aimed at teenage boys.

In terms of gameplay, Scavenger are being particularly secretive. However, GT interactive, which will be distributing the game in the UK, promises a 3D shoot 'em up which takes on a first-person view, but from behind the character (rather like the first section of Probe's *Die Hard* game). What Scavenger are most keen to point out is that the 3D rendering has been accomplished using NURBS (non-uniform rational b-splines) which can draw curves with more realism than current polygon technology.

Scavenger were showing *Terminus* off in a limited form at E3 and more details should become clear soon. Judging by the game's visual style, it looks like the product will be in direct competition with that other dark, sci-fi romp, *Murder Death Kill*.







Possible sci-fi influences: the control room in Aliens (centre) and *Wipeout* (below)





Players view the game from above and behind the character they are controlling

Into the Shadows


The complex skeleton model is highly impressive, and it uses less than 350 polygons

Format:	PC/PS/Saturn
Publisher:	Scavenger
Developer:	In-house
Release date:	TBA
Origin:	US

When id finally releases *Quake* in a few months, it will not be the only game to feature gloomy mediaeval scenery, and combat-orientated gameplay.

Scavenger's visually stunning *Into the Shadows*, a 3D D&D-styled gambol, features some amazing animated characters taken from popular mythology.



Realtime torch flicker and detailed backgrounds lend much atmosphere to each encounter. The stone paving is particularly good



One-on-one combat comprises an important part of the game

Its skeleton warrior is particularly impressive, comprising of a complex network of bones, but yet employing less than 350 polygons. Wizards, elves and orcs will also be making appearances.

To accompany the impressive characters, the backgrounds are highly detailed and complex, with some gorgeous realtime lighting provided by flickering wall-mounted torches.

Despite its elaborate appearance, *Into the Shadows*' gameplay is in fact shaping up to be quite straightforward, coming across almost like a full 3D version of *Double Dragon* with weapons. Such matching of two extremes should provide an interesting game.


An orc beside an inverted cross: symbol of Satanism – probably not a good guy, then

Mud Kicker


Crowding the scene with foliage is a great way of avoiding distance fogging

Format:	PC CD-ROM
Publisher:	Scavenger
Developer:	In-house
Release date:	TBA
Origin:	US

Racing games are hardly an endangered species these days so it is surprising that a company such as Scavenger, which prides itself on diversity, should develop two simultaneously.

However, whereas *Scorcher* looks like being a futuristic cross between *Wipeout*



The circuits look to be true offroad affairs. The player speeds through a narrow gauge (left) and crashes to earth after a steep hill (right)


The Beetle-like car makes a change from *Ridge Racer*'s super-slick vehicles




and a pinball game, *Mud Kicker* is clearly aiming itself at the more down-to-earth offroad racing sub-genre.

Like the other titles here, *Mud Kicker* shows off Scavenger's penchant for richly detailed locations – with each mud-streaked track lined by well-drawn foliage and looming cliff walls. Furthermore, the car itself, a cute Beetle clone, is an amusing antithesis to the sports cars that usually adorn racing titles.

Edge has yet to see the game in motion, but if Scavenger can give *Mud Kicker* the fluidity to match its beauty in stills, the PC may finally get the racing game it deserves. It'll have its work cut out beating the PowerVR-charged *Rave Racer*, though.

Murder Death Kill

Format:	PC
Publisher:	Shiny
Developer:	In-house
Release date:	December
Origin:	US

Shiny has overdosed on platformers. As a form of therapy it is working on an ultra-vicious 3D development for the PC









***Murder Death Kill*'s distinct graphic feel owes much to sci-fi classics such as Bladerunner, Alien and Mad Max – a far cry from *Earthworm Jim*. Kurt's movements within the game world include running, jumping, climbing onto structures, and parachuting**



Shiny Entertainment, purveyor of the cute and cuddly. Or is it? Contrary to the loveable outward appearance of *Earthworm Jim*, if you looked a bit closer it was clear even then that **Dave Perry** had a darker side, a twisted streak if you like. For contained within the cartoony façade of *EJ* there was a stack of violent touches. Shiny has left the console scene, though, and moved into PC development. And for its latest project, Perry has given vent to his pent-up violence. The title alone, *Murder Death Kill*, suggests that what is to follow will be more carnage than cartoon, more anarchic than animated.

It seems rather a large departure from the cosy world of outwardly cute platform games that have entirely made up Shiny's body of work to date. But the move to PC is all down to opportunity. 'Shiny has been waiting to do a game like *MDK* for years,' says Perry with evident enthusiasm, 'but to perform we needed raw power and now the PC has reached that status.'

Power, though, is only half the equation. You also need the expertise to use that power, and although this is its first foray into PC development, Shiny appears to be wading into the market and, to coin a phrase, teaching its grandmother how to suck eggs.

The game is set in a world where huge cities on wheels are travelling across the earth, destroying everything that gets in the way. The hero, a black-clad sniper comically named Kurt Hectic,





The character realisation is somewhat eccentric, but certainly well implemented







These prerendered shots illustrate *Murder Death Kill*'s macabre, futuristic setting

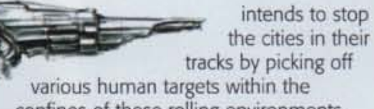




Kurt Hectic's weapon is, oddly, a head-mounted gun that resembles a pen nib



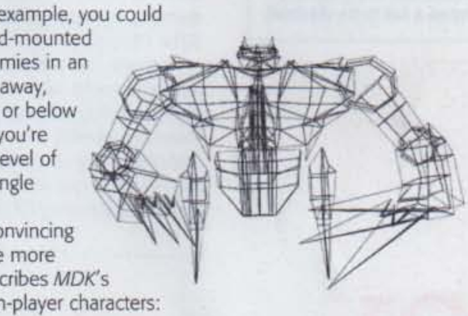
Like *Fade to Black*, *MDK*'s action is viewed from above and behind the character. When targetting a victim, the head-mounted display is used



intends to stop the cities in their tracks by picking off various human targets within the confines of these rolling environments. These cities are not just elaborate super-trailers, though – they're huge, and the plan is to create the largest cityscapes ever found in a PC game.

The visuals have been created at the highest resolution possible and are shrunk down into the distance, a technique opposing textbook 3D development rules. The result is superbly detailed scenery, with very little pixellation even when viewed up close.

But it's the style of gameplay that Shiny hopes will really place the game apart from the competition. Perry explains: 'The game can be described as voyeurism (target someone a mile away then decide where to shoot them), power (you can pull the trigger any time, they don't even know you are watching), torture (shoot his ear off first), chilling (they don't die till you finish them off), control (you control the player from behind, that way, you can see him being hurt and negotiate obstacles), stealth (hide a mile away before you start picking enemies off) and aggression (we threw in a gatling gun for good measure).' So, for example, you could use the hero's head-mounted gun to pick off enemies in an office three blocks away, somewhere above or below the roof on which you're crouching. Such a level of freedom sends a tingle down the spine.



To make this convincing environment all the more plausible Perry describes *MDK*'s handling of the non-player characters: 'The game displays true enemy intelligence. Shoot a guy in the leg and his friend will come to his aid – shoot him too if you like.'



The bad news for many gamers (and something for PC owners to feel all the more smug about) is that this potentially epic title is only pencilled in for release on the PC. Perry has no news of either a PlayStation or Saturn conversion, although the possibility can't be entirely ruled out. But what of the Nintendo 64? 'Because Nintendo went with a cartridge, *MDK* would never fit into its machine.' It seems that if gamers want to experience what is shaping up to be one of the most convincing worlds yet created in a videogame, they'll have to start saving up the pennies for a PC.





Shiny reckon *MDK*'s cityscapes are some of the largest and most elaborate on the PC





The head-mounted gun enables you to zoom in on a target to pin-point precision from far away

Olympic Games



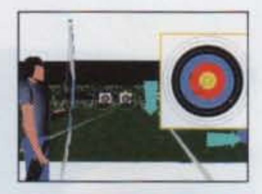
The traditional track and field events are there, but the graphics leave a lot to be desired

Format:	PlayStation
Publisher:	US Gold
Developer:	Silicon Dreams
Release date:	June
Origin:	UK

With the Atlanta Olympics just on the horizon, it was only a matter of time before the official licence was snapped up to slap on a videogame. And, not surprisingly, it's US Gold, famed for its monicker grabbing, that has done just that. It seems, however, that the quality of the games borne from such endeavours does not always reflect the financial outlay – *World Cup USA 94*, for example, was particularly dismal. Can a 32bit Olympics-based title do any better?

Konami has already taken the lead in the multi-sports race with *Track and Field* (see page 88), a visually stunning and, more importantly, incredibly playable and addictive game. But with more events than its illustrious rival, including fencing and skeet shooting (along with the traditional track and field events), Radio Five Live commentator, **Alan Green**, providing a voice-over and the customary furious button bashing technique in place, how could *Olympic Games* fail?

Quite easily, if early demos are anything to go by. While the graphics are texture mapped and Gouraud shaded, in their present state they lack the fluidity and grace of those in Konami's effort. US Gold insists that the game is still some way from completion, but there is much work to be done if *Olympic Games* is to reach the heights of the splendid *Track and Field*.





***Olympic Games*' one saving grace over *T&F* is the inclusion of extra events, such as archery**

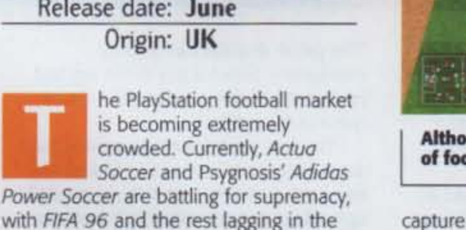




Although the standard joypad-pummelling control method is employed and the game features many events, it just looks... average

Olympic Soccer

Format:	PlayStation
Publisher:	US Gold
Developer:	Silicon Dreams
Release date:	June
Origin:	UK



The PlayStation football market is becoming extremely crowded. Currently, *Actua Soccer* and Psygnosis' *Adidas Power Soccer* are battling for supremacy, with *FIFA 96* and the rest lagging in the background. *Olympic Soccer* is an unusual licence in that football is hardly what one would describe as a 'traditional' Olympic event (how many soccer gold medal winners can you name?). And with all football eyes on England's Euro 96 tournament, it seems even more curious.

Olympic Soccer relies rather less on visual prowess than most other PlayStation football titles. Its 3D animation is a combination of motion capture and key framing, yet the graphics are a tad basic, sacrificing detail for speed and playability – the game runs at between 30 and 40fps. There are 18 camera angles, 32 teams and the commentary, as in USG's other Olympics-inspired title, is being suppplied by the easily excitable **Alan Green**.

Few markets are as competitive as that of videogame footy, and USG has its work cut out in assuring its contribution a sizeable audience.





Although its graphics don't offer anything above the current batch of footy sims, *Olympic Soccer* does provide action at 30 to 40fps

The pre-match gloss is the usual fare, with formation selection and statistics galore



***Olympic Soccer* boasts a total of 32 teams, but none of the actual player names are used**

Hind





Delivering and protecting soldiers is an important strategic element of IM's sim

Format:	PC
Publisher:	Int Magic
Developer:	Dig Integration
Release date:	TBA
Origin:	UK



With the PC slipping comfortably into its new role as a bona fide platform for arcade games, traditional genres, like the flight sim, are losing ground. In order to tempt potential propeller heads back in to the fold, Digital Integration is about to release *Hind*, follow up to last year's hugely successful *Apache* sim.

As the title suggests, *Hind* puts the player in the cockpit of Russia's formidable Hind attack helicopter, famed for its troop carrying facilities and varied weapons load. The game is structured into three scenarios – Korea, Afghanistan and Kazakhstan – each one providing the basis for dozens of realistic missions. These feature the usual military flight themes: shooting other aircraft down, clearing paths for ground offenses and bombing static targets, etc.

However, to diversify the gameplay, *Hind* also includes ground troops as an important element of each scenario. In some missions, for example, allied soldiers will need to be dropped into the war zone, protected during ground initiatives and then picked up again when their objectives have been carried out.

Visually, *Hind* looks more impressive than many flight sims, whose juddery, flat-shaded polygon environs are typical of the genre. Textured landscapes flow smoothly beneath the player's craft; the Hind itself looking impressively mean.

Whether this title can tempt players away from the immediate PC pleasures supplied by limitless *Doom* clones is questionable (although *Hind* does feature an easy-access arcade mode). With a few interesting gameplay features, reasonable visuals and a multiplayer option (allowing *Apache* owners to go head to head with *Hind* players), this should be an interesting return to form for the flight sim.





***Hind* distances itself from the usual jerky flight sim graphics with some smooth texturing**

Tobal No.1





The gameplay should reflect the like of *Virtua Fighter*'s hand-based combat, rather than *Soul Edge*'s weapons or *SSFII*'s projectile attacks

Format:	PlayStation
Publisher:	Square Soft
Developer:	Dream Factory
Release date:	TBA
Origin:	Japan





With experience on all Sega's high-end 3D coin-ops, *Tobal No.1*'s creators show promise

The Dream Factory is the team behind Square Soft's new PlayStation-only beat 'em up, *Tobal No.1*, and together they possess an astounding amount of experience in the 3D videogames field.

Dream Factory president, **Seiichi Ishii**, has worked on *Virtua Racing*, *Virtua Fighter*, *Tekken* and *Tekken 2*. Its director, **Shin Kimura**, worked on *Virtua Racing* and both *Virtua Fighter* games. The rest of the team have also worked on the aforementioned games plus *Soul Edge*, *Jikkyo Powerful Pro Baseball* and *Daytona USA*. Such a powerhouse of development talent, along with the storyline and character creations of **Akira Toriyama**, one of Japan's leading comic book creators, should practically guarantee a top class product.

Only four of the planned ten fighters have been announced – a young boy called Chouji Wo, a girl called Epon, an alien called Oraimusu and a robot named Homu. Little is known about gameplay, but there will be no weapon-based or projectile attacks. Combat will be carried out hand to hand with the emphasis on linking together successive moves. It may also be possible to launch attacks by bouncing from the arena's walls.

Although not as visually impressive as *Tekken 2*, *Tobal* shows great promise, especially if its developers can match their earlier successes.





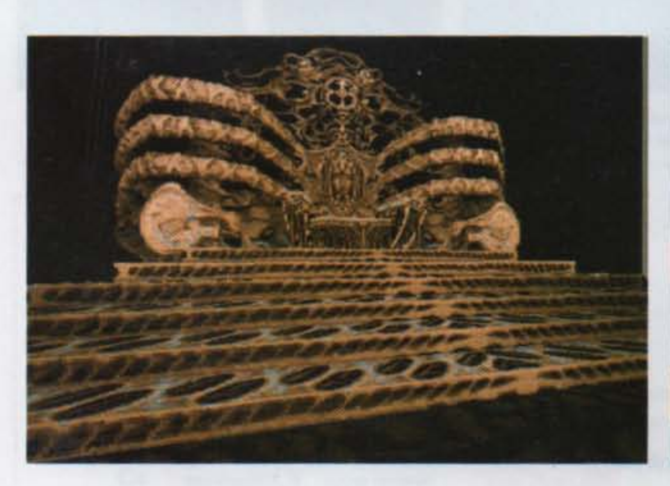


Photography by Jude Edginton



Gremlin







The *Realms of the Haunting* team (top), an FMV scene from the game (centre left) and in-game shots (above)
Reloaded (centre right)

With dozens of titles in development, a nationwide gaming network to support and several graphics cards to study, the company responsible for 8bit legend, *Monty Mole*, is busier than ever. Edge discovers the secret of Gremlin's excess

The story of Gremlin software has one of those irresistibly down-beat beginnings which we often hear in relation to British software houses. 'It all started in a computer retail outlet in Sheffield,' says PR executive, **Steve Leigh**, defining the term 'down beat' in one convenient sentence. 'Just Micro was a natural meeting place for the young computer enthusiasts of South Yorkshire, so co-owners **Ian Stewart** and **Kevin Norburn** decided to organise the more talented of them into a small programming team. Subsequently, in June 1984, Gremlin Graphics Limited was formed.'

Since then Gremlin has produced dozens of successful titles, from the quaint platformer, *Wanted: Monty Mole*, to last year's top-down shoot 'em up *Loaded*, a brilliantly gory showcase for the PlayStation's lightsourcing abilities and, along with *Wipeout*, a key title in selling the console to the important English market.

Recently, the company seems to have gone into overdrive. Expanding to 90 employees from the original handful, Gremlin is now working on numerous software projects as well as looking into the burgeoning 3D accelerator market and the world of online gaming – via BT's *Wireplay*.

And the company is looking to expand further. 'One of Gremlin's philosophies,' explains software manager **Tim Heaton**, 'is to do everything in-house. This time, the filming for *ROTH* [*Realms of the Haunting*] was done out of house. Next time it will be in-house.' Why? 'Because we learned how to do it.'

Due out in May on the PC, and running over an incredible four CDs, *Realms of the Haunting* is a horror adventure which the press material describes as 'a disturbing vision of the future based on the many beliefs of the apocalypse'. If only it were that simple.

Realms of the Haunting

In *Realms*, the player takes on the role of Adam Randall, who comes to Hellston in Cornwall to attend his father's funeral, a parish priest who has died in suspicious circumstances. Soon Adam begins to dream of a dark house and when he finds it in real life, he discovers the 800-year-old building was the home of a powerful French sorcerer and the gateway to all the realms of the universe. Through this gateway the sorcerer's evil doppleganger, Belial, has been unleashed, threatening to bring with him a horde of demons to slaughter everyone. In order to save the known universe, and the trapped soul of his father, Adam must kill the demons and discover the magician's power source – the mythical soul stone.

Realms can be most easily described as a first-person *Resident Evil* – or a first-person Hammer horror-style haunted house adventure. At the heart of the game is a stunningly smooth 3D engine created by 8bit progeny **Tony**







***Realms of the Haunting* combines FMV material with SGI and *3D Studio*-produced backgrounds. The result is a genuinely superior range of video sequences which push the plot along**







Tony Crowther's impressively smooth 3D engine, refined since the version used in *Normality*, allows for some gorgeous backgrounds that, although rich with detail, maintain a rapid frame rate

Continued next page

Continued

Crowther, previously responsible for key Commodore 64 action game *Suicide Express* and the slightly less cool *Potty Pigeon*.

The engine works a little like *Doom* crossed with *Zelda*. Players explore each location as they would in *Doom*, through a first-person view, but can also stop and manipulate objects using a hand icon. The highlighted object can then be selected and placed on a separate inventory screen or discarded, à la most RPGs. The player also gets to wield a selection of weapons, including swords, staffs and even a 17th-century cavalry grenade launcher.

Edge has seen only a few sections from the game's main location (the sorcerer's mansion), but they are all incredibly detailed and surprisingly beautiful to look at, considering the speed at which the game runs. Antique furniture, book cases, cabinets and open fires are in place, lending a distinctive atmosphere and authenticity to each location – there are even realistic mirrors on some walls which, when finished, will reflect back the contents of each room with a glassy sheen.

At certain points in the game, such as when the player enters an important room for the first time, the plot is fleshed out with (gulp) FMV sequences. Fortunately, they are not the usual disjointed cuts featuring tragically bad actors prancing around dire movie sets. In fact, Gremlin has used the old blue screen trick to film only the actors – the footage is then placed on top of the actual in-game backgrounds. As a result, the FMV sections merge seamlessly with the rich photo-quality game environments.







Lighting plays a big part in each *ROTH* location. Glowing lava, luminous gems and spot lighting add to the atmosphere

Gremlin's software manager, Tim Heaton, explains the complex procedure: 'We used *3D Studio* to develop some of the textures (to add photorealisic lighting effects) and then placed these onto maps in our in-house map editor. The map editor can output in *3D Studio* format so any scene can be pulled in, camera angles messed with, etc, and then rendered. The rendered files, often with animation and camera moves, are then taken to SGI machines. Here we composite the blue-screened actors over the background and put on added effects (smoke, extra lighting, etc). We really need to use the SGI machines for final 'post production' because we cannot do the 'matteing' (blue screening) and other effects at a high enough quality on *3D Studio*.'

The director of the FMV sequences, **Alan Coltman**, together with a small camera crew, took around six weeks to shoot the sections, all filmed in one cramped room. The result was 25 hours of footage which has since been hacked down to the two hours that will actually appear in *ROTH*.

To accompany the backgrounds, and give the player something to wrestle with, Gremlin's 3D modellers are working on a range of 20 different hideous demons, all of whom having a detailed history in line with *ROTH*'s complex mythology. Tengiis is a shadowy demon who attacks the player with a barrage of fireballs, and Wielders are Alien-esque servants of Belial who have huge claws with which to slash unwary opponents to death.

Upholding the standards set by the main engine, the demons (each taking up 200 to 300 frames of animation) move smoothly and realistically, and look remarkable. As *ROTH* producer, **Paul Green**, explains, 'Each demon is a 3D rendered model with motion-captured data applied to its frame. They are all rendered in movement and captured from eight different angles to give them a sense of three dimensionality.'





Looks familiar. *Reloaded* uses similar pyrotechnics to its predecessor, but adds more complex gameplay elements and several new characters

Judging by the quality of the visuals, and the quality of thought that has gone into the game, **Edge** is expecting a lot from *ROTH*. It would be refreshing for a title with such broad ambitions to work as an entertaining videogame.

One Gremlin title which did work as a videogame was the brilliant top-down blaster, *Loaded*: a visceral combination of splatter-house gore and beautiful lighting effects. The sequel, appropriately named *Reloaded*, is currently in development and already looks marvellous. As Heaton points out, 'it's got more gameplay than *Loaded*, more special effects and more blood.'

The design agenda seems to be a sensible one – change the things people didn't like about *Loaded* and add more of what they did enjoy. For example, the original was much criticised for its rather limited gameplay – for the fact that the player often just had to shoot and hope. For *Reloaded*, then, the designers are adding puzzles and 'RPG stuff' to create a more cerebrally demanding game. At the moment the puzzles sound rather simple and *Doom*-esque – in some locations, carrying out certain actions will cause something to happen in another, etc – but that is perhaps enough to give the game a further level of interest without upsetting the original's emphasis on hectic violence.

Map designers are also adding greater variety to the outdoor locations, which previously looked a little bland. *Reloaded* boasts a wider variety of hills and cliffs, in both number and height, creating a much more interesting environment for the action. To capitalise on this, Gremlin are employing an interactive camera which wobbles and tilts as the player's character goes over rougher ground. Not only is this a great visual effect, but it also makes the game more immersive to the player.

On the subject of great effects, the cascading ripple produced by Mamma's special weapon was one





The exterior locations in *Loaded* were criticised for being a little dull. The designers of *Reloaded* have addressed the problem, adding hills, valleys and cliffs. The familiar top-down display remains, though

Continued next page

Gears and Guts (PlayStation/Saturn)

On the surface, *Gears and Guts* would seem to be a particularly bad idea - the 32bit consoles are not exactly short of quality racing titles. However, it may be sufficiently different to carve its own niche in the market.

The player chooses one of six beefy pick-ups and then races it over six different off-road tracks. The circuits are based on a grid rather than linear layout, which means there are loads of secret routes and short cuts. The trucks themselves have independent suspension on each wheel, all reacting to what programmer **Niall Dunne** calls 'real world physics'. The final game should run at between 25 to 30fps, so expect an exhilarating, bumpy ride.





Sand Warriors (PC CD-ROM)

Sand Warriors is a futuristic flight sim, rather like *Hardwar*, but mission based and totally linear. The action is set on the desert planet, Orion, where two rival groups, the house of Osiris and the house of Set, battle for world domination. The player takes on the role of a pilot representing Osiris who must get through 30 missions to aid in his colony's conquest of the planet.

The game features 20 different ships and vehicles and a huge playing area covering 30 separate maps. The player can also rise through the ranks of the Osirian airforce gaining better weapons, harder missions and better craft throughout the game. Eventually the player has to command a small fleet of fighters. *Star Fighter 3000* meets *Elite*.





Slip Stream (PlayStation)

This is the working title for a new flight sim Gremlin are preparing for the PlayStation. The programmers are actually taking the raw maths from the old PC title and placing the data into a more attractive graphical environment. Little is known about the game at the moment, just that it will have an urban manga-style look (the ships are being designed by Japanese artists) and will involve lots of shooting. According to Leigh, 'The game is currently being converted for the Japanese market. This will then be completely reshaped for a European release - so anything is possible.

Continued

universally popular element of *Loaded* that will definitely make it into the sequel. In fact, programmer, **Paul Hiley**, states, 'we're thinking of capitalising on the ripple effect – maybe with soft landscapes – shifting sands etc. There's a lot of stuff we have to try out and see if it works. There's also the idea of the ripple effect throwing people up in the air now, so you're character will have to jump up to avoid a ripple that would catapult him or her into the sky.'

The most immediately obvious additions to *Reloaded* are the new characters: Sister Magpie, Honey Pi (a chaos detective) and Pork (cannibal cop) – all of which have the extravagantly warped visual style and bruised psyches of the originals. Sister Magpie, for example, is a cyber nun who travels the universe collecting 'shiny things' to raise money for her order's damaged church roof. Unfortunately her systems have malfunctioned and she now ruthlessly slaughters anyone who refuses to donate. She also has 'superior mother' etched into her laser cannon.

Staying in the sci-fi action genre, Gremlin bill another of their titles, *Hardwar*, as, 'a futuristic arcade flight simulation' or, more catchily, '*Elite* set on one planet'. The game takes place in the allegorically titled city of Misplaced Optimism, a sprawling metropolis taking up nine huge craters on the surface of Titan. Players begin the game in an old banger of a spacecraft and the aim is to make money, improve the ship, conquer the planet and finally escape from it.

Hardwar, like *ROTH*, features a 3D engine which performs marvellously. In the brief PC demo **Edge** has seen the player's craft (which can be piloted in either a cockpit or an external view) moves with impressive speed and fluidity across the beautifully drawn rocky landscapes and looming skyscrapers. Furthermore, the restrictions placed on the engine in the interests of speed are handled particularly well. Depth shading is provided by a believable sandy haze which hangs over each crater, and the gaming universe is given a natural limit by the icy cold of the planet's surface – if you try to fly too high, your craft freezes up and you'll crash.

The ***Hardwar*** **cityscapes are impressive, especially when the player swoops over at high speeds**





Hardwar **features realistic day and night cycles. Getting caught in the dark can cause problems**

Another challenge facing the prospective pilot is the fact that the game features realistic night and day cycles and all ships on Titan are solar-powered. Unfortunately, their abilities realistically reflect this encumbrance. For example, craft consume more power at night and will therefore have to make visits to the huge light-wells which act as solar petrol stations.

Perhaps the most important element of *Hardwar* is the totally non-linear nature of its gameplay. To make money the player can use the communications channel – an in-game version of a network bulletin board – to browse through and take on the missions offered by various organisations. These missions vary from simple dispatch

Fragile Allegiance

Set in a future where Earth can no longer support its ever increasing population, *Fragile Allegiance* is a PC god game in which the player must set up a new colony on an inhospitable asteroid. To complicate matters there are six alien races in the vicinity with which the player must communicate, negotiate or simply destroy. *Civ* in Space, then.

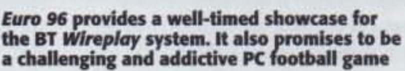
Due for release at the end of the year, the game will also include a multiplayer option and the first use of Gremlin's facial motion capture system.











Euro 96 provides a well-timed showcase for the BT Wireplay system. It also promises to be a challenging and addictive PC football game



and salvage operations to bounty hunting, assassination, and smuggling, but the player gets to choose exactly which he does and doesn't want to take up. Players can also trade, which is a more peaceful means of making money, and one less likely to occur the wrath of other Misplaced Optimism pilots.

With enough cash, of course, players can purchase better defence and attack systems for their ships which can eventually be upgraded to one of the other five craft available. It's also possible for the player to build up whole fleets of craft and even buy property in which to park them.

Also important is the fact that Misplaced Optimism is a living city. The player comes across traders, gangs and police craft throughout the game, all possessing complex AI routines to add to their realism as opponents. Gremlin are also preparing an eight-player network option which will allow participants to compete against each other or form gangs and share resources. It's also possible to have more than one player in one craft – so, for example – player one can pilot the craft while player two acts as gunner.

Despite the player being bound to one planet, *Hardwar* seems to offer a similar level of depth and diversity to that offered by *Elite* a decade ago. The familiar elements of flight sim, flight shoot 'em up, trading and craft improvement are all present, but here they are placed within the context of a smooth 3D engine and gorgeous cityscapes.

Back on Earth, Gremlin is also working on a range of multiformat sporting titles, the flagship of which is *Euro 96* – a footy game based on the forthcoming European championship to be held in July.

Euro 96 takes all the foundations laid by *Actua* and builds on them. The players are now using 120 frames of animation each and twice the amount of motion-captured data: on the field, this translates into some incredibly realistic movement. There are also plenty of new special moves – scissor kicks, etc – which implement *Actua*'s one touch system. The goalies, too, have been refined and are now much more realistic – they can tip the ball over the cross bar or round the post for a corner, rather than simply catching (or missing) everything that comes their way.

Realism has been a major concern for designers throughout the project. The eight stadiums in *Euro 96* are all modelled accurately on the real things. Furthermore, the game includes all the correct FIFA rules, and night matches are now possible due to a new floodlighting system. Most importantly, though,

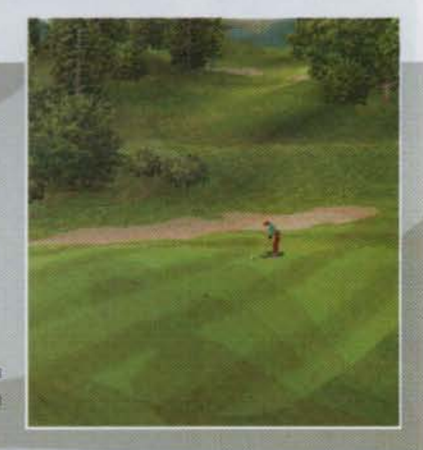
Actua Golf



Accompanying *Euro 96* in Gremlin's summer sport release schedule, *Actua Golf* features motion-captured golfers, amateur or professional tours, and commentary by golfer's guru, **Peter Aliss**.

The game also offers a true 3D playing environment, a variety of camera angles and the chance to view each shot from up to three different angles simultaneously (in three separate windows) allowing for unprecedented accuracy.

All the rules of golf are in place and players can choose from strokeplay, matchplay, foursome and fourball options. The title is due out on the PlayStation in July.



Continued next page

Continued

Gremlin has formulated accurate team data for each of the 16 teams taking part in the tournament, and each team member's AI is crafted specifically to reflect the playing style of the country he represents. In theory, this means that playing against Germany or Holland, for example, will be a very different tactical experience to playing Scotland or England.

In terms of picking the right players, Leigh is adamant Gremlin has got as close as possible: 'We've got all the teams and formations in there accurately – as far as we can guess them. Basically, just before it gets signed off, we're gonna take a final guess at who Venables is going to pick, because obviously after all the friendlies you get a better idea.'

As with *Actua*, *Euro 96* features a certain amount of managerial/simulation content. For example, each player has a set of statistics which shows his particular strengths and weaknesses. Although this is an element borrowed from *Actua*, the content has changed completely, as programmer **Richard Stevenson** states, 'We haven't cut the number of player statistics down, but we have generalised them. After *Actua* we got a lot of people asking what do 'flair' and 'control' mean – how do you decide if so-and-so is a good defender, etc.' In *Euro 96*, then, each team member has skill bars relating to things like speed, tackling and shooting skills so the player can make easier decisions as to whether each team member is better suited to attack or defence.

Euro 96 also adds a new fitness rating for each team player, which fluctuates throughout the tournament. Steve Leigh explains: 'At the beginning of the tournament each player's fitness level will be around 99%, but if you get injured, take too many heavy tackles or do too much running around, that number will gradually decrease throughout the tournament. If you've won you're last two matches and you've got a really soft game left, you can drop your best player so he doesn't get injured or anything.'

Commentary has become a vital element of any sports sim and Gremlin has reacted accordingly.

Wireplay and online gaming

With *Euro 96* recently announced as the first game to include *Wireplay* compatibility, Gremlin will play a pivotal role in the imminent launch of BT's gaming network. Happily, Gremlin's involvement with the initiative was, as Steve Leigh puts it, 'a no lose situation'. BT have contributed greatly toward the game's advertising budget, and the publicity which *Wireplay* is bound to provoke over the coming months will no doubt also take in *Euro 96* – the system's launch title.

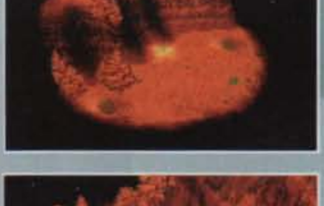
Wireplay compatibility will make it possible for 20 participants to take part in one online *Euro 96* match, each player controlling their favourite team member. *Wireplay* users will also be able to control a team by themselves and set up leagues and knockout tournaments with other subscribers.

But what were BT like to work with, and how much input was Gremlin allowed to give into finalising the *Wireplay* specs? Edge spoke to software manager, Tim Heaton.

'We've worked extremely closely with BT on the development of *Wireplay* and have certainly contributed a lot to how *Wireplay* works at a low level. We didn't make our life easy by choosing a 'twitch' game such as *Euro 96*, which requires very fast updates, but, as everyone saw at ECTS, it works very well.

The main problem we have had is with latency through the system [see below] but once that reaches a certain threshold the network becomes 'transparent' and we can get 20 people playing on the one game, irrespective of their location. BT and their developers have worked well with us and although they sometimes don't have the 'stay up all night until its done' attitude that we as game developers do, their ability can't be faulted.'

As Heaton suggests, the main problem with online gaming is latency through the system. Basically, it takes a modem around 20 milliseconds to send/receive a message to/from another PC, which means, of course, that there is a gap between one PC sending, and one PC receiving the information being sent. This problem is compounded with *Wireplay* because each PC must send its information to the switching network – the server – at BT, which then sends the information out – costing more time.





At the moment *RPG* is little more than a great 3D engine. It promises to become a great game

Despite these problems, *Euro 96* ran particularly well at ECTS and an easily acceptable frame rate was achieved. This is lucky because online gaming is becoming an important element of Gremlin's software output. Two PC games currently in development – *RPG* and *Skirmish* – are being written especially as multiplayer games to be played over local networks or 'wide area networks' like *Wireplay*.

RPG ('not even a working title – its just a genre') is a 3D RPG-style adventure, inspired by *Ultima VII*. The game features a wide selection of motion captured creatures and the artists are planning on stretching and squeezing the captured data so that they can create giants, ogres, etc. There will also be an intelligent camera which zooms in and out on the action. Gremlin hope to design the game so that it can support up to 100 players over local or wide area networks.

Skirmish is in a similarly early stage of development and Gremlin are being a little cagey about what the game will involve. Leigh describes it as a kind of 3D first-person *Command & Conquer* in which players will be able to lead squads of soldiers into battle. The plan is to combine a *ROTH*-style 3D engine with characters of a similar motion capture quality to the *Actua Soccer* players. Again, the emphasis will be on multiplayer action.

Gremlin are also planning to adapt past releases like *Fatal Racing* and *Slipstream 5000* for Wireplay.



***Euro 96* will support 20 players per side through local or wide area networks. Sounds like fun**



Euro 96, *Actua Golf* and *Actua Tennis* (in its very early stages of development) all feature extensive commentary which has proved to be an excellent addition to atmosphere in previous titles.

In house musician, **Neil Biggin**, took six weeks to draw up a script consisting of 58 categories of comments, each category containing hundreds of separate sentences. 'Before, we had something like 20 to 30 variations on each category,' explains Biggin, 'I've basically doubled every one. For thrown-ins, there only used to be four variations, but now there are about 25. For goals, there are now 200 different comments, including special comments for goals scored using the special moves.' Top Match of the Day presenter, **Barry Davies**, has once again been brought in for commentary duties and apparently performed with zest throughout the gruelling two day recording schedule. Biggin claims, though, that 'the voice of football' is something of an artiste, 'He'd sit there and say, "Oh that's a John Motson-type line. I'm not saying that," and also he wouldn't say the word, "there" at the end of a sentence because Brian Moore does that.'

Combined with the auspicious *Wireplay* option, *Euro 96* looks as though it will make the same kind of impact as its predecessor did last year. If the management sections merge well with the actual gameplay, which is looking particularly promising at the moment, this should be a remarkably versatile and far reaching simulation.

In fact, 'remarkably versatile and far reaching' makes a fitting description for Gremlin itself. Although the company has spread its resources widely – multiplayer options for almost all of its games, *Wireplay* support, graphics card analysis, in-house motion capture – the quality of output does not seem to have been compromised in the process.

'We have an excellent mix of traditional gaming experience and new technology here at Gremlin,' points out Heaton modestly, 'but state-of-the-art games are a mixture of teamwork and talent and I think we've got it about right.'

3D accelerator cards

They've been hyped to death by the PC gaming press, but the forthcoming wave of 3D accelerators are still largely an unproven commodity. At the moment, Gremlin programmers have an early demo of *Actua Soccer* running with most of the cards they've looked at, in a resolution of 800x600, 16bit colour, at 20 frames per second on a P100 processor. But how difficult was this to achieve? Software manager Tim Heaton explains Gremlin's approach to the latest phenomena in PC graphics: 'When we produced *Actua Soccer* we had a lot of interest from chip manufacturers who asked to work with us. There are actually around 40 chipsets out there at the moment because everyone wants a piece of the pie, but we initially chose to work with S3 (Virge), ATI (Rage), Rendition (Verite), 3Dfx (Voodoo) and Creative Labs (Permedia), although we're talking to other people as well.

We took the decision to work with these chips, because, first of all, there's lots of money to be made at the moment in doing bundles with these people - they're very keen to do it and we know we can. Also, if we set up business alliances now, when the business really fleshes out and they really do start selling lots of these cards, we'll be in with them. We also knew we'd learn a lot in the process.

It has been an uphill struggle though, because of the state of the SDKs [software development kits]. We actually got involved at a very early stage, when each company's kits were still in alpha and beta phases, meaning as a result it has been really hard work for us, working directly with their engineers, sorting problems out, steering them, learning their secrets, working together, etc. The real skill in currently developing for the boards is spotting which bugs are ours and which are in the development libraries, but to date we've got each one working well. We should see life get easier when the Game SDK from Microsoft fully supports these cards.

The other problem is that many of the companies are not putting enough memory on the cards, which is obviously a cost thing - they've got to bring it in at a certain price. Unfortunately, 2Mb of RAM is not enough for us to take advantage of many of the hardware facilities: we can't do things like z-buffering or MIP-mapping, etc. because we don't have enough room to store all the different textures. Alpha blending and all that, we can use, but things which take up a lot of memory are a problem. A lot of the cards do have a 4Mb option, but you have to write to the lowest common denominator, really.

Out of all the effects offered by the chips, we find bi-linear filtering to be the most useful, giving instantaneous improvement in graphical quality. By using filtering, the textures take on that smooth, ever-so-slightly-out-of-focus look, which works well in some situations - you lose all the pixellation and it looks sort of misty. In fact, the *Actua* demo looks like its running on an arcade machine, it really does. It has that feel of arcade machines too, because they obviously have these hardware facilities built in. The N64 stuff that I've seen looks like that - it just gives a smooth look to a game that we're not used to seeing on the PC.



Photography by Jude Edginton

The use of bi-linear filtering has also meant that the programmers have been able to reduce the amount of texture space needed - a vital feature considering the two megabyte memory limit of most cards. Despite the problems, Gremlin are sticking with the cards and are highly committed to working with accelerator technology. Heaton even finds time to keep one eye on the future: 'Intel are thinking about putting some of these chips on their multiboard, so in the future when you buy a PC, it will come with a graphics accelerator chip built in.'

Micro

With a reputation for winning - some would say at any cost - Bill Gates' Microsoft is the biggest consumer software company in the world. Now this giant corporate predator has turned a hungry eye to the game industry. Should gamers tremble or rejoice, asks Edge

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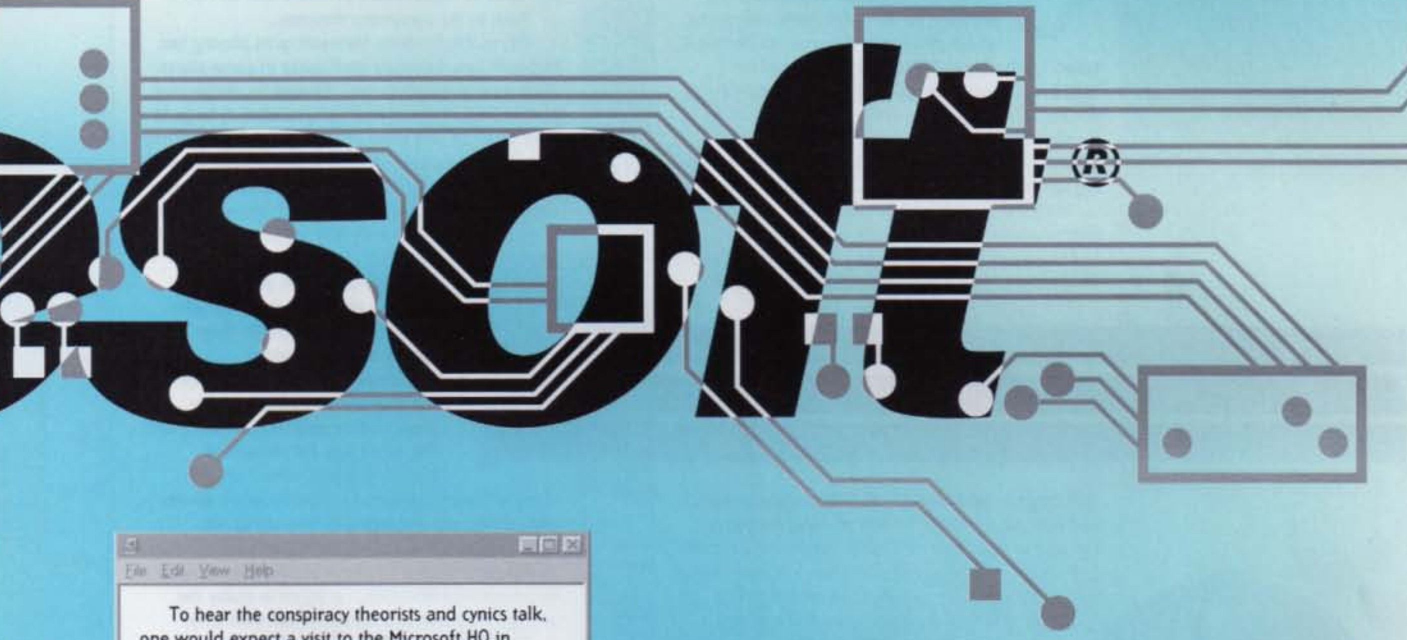
Microsoft is corporate evil incarnate: a predatory, domineering software giant known for strong-arm tactics in the distribution channels, and late, slow, feature-laden (but otherwise derivative) software. It is a company whose *Windows* operating system - its flagship product - seems almost purposefully designed to waste processor cycles and RAM. Yet it thrives in a dog-eat-dog market where brute business muscle and a strong stomach for screwing competitors are almost as important to success as superior products.

Such is the way many on the Internet and in the computer and popular press would have you think of **Bill Gates**' wildly successful giant corporation.

The game industry had better beware. How can such a bruiser of a company succeed in the fast-moving game market without resorting to the same strong-arm tactics that have sparked recent numerous anti-trust investigations? Will Microsoft use its muscle in the marketing and distribution departments to ensure that conservative (read poor) Microsoft games receive valuable shelf space? Will the capricious *Win 95* be forced down developers' throats? Will the PC gaming world collapse, crippled by the weight of a slow, uninspired games library, dragged to its knees by a need to run through a shoddy, buggy interface?



1 object(s) selected



To hear the conspiracy theorists and cynics talk, one would expect a visit to the Microsoft HQ in Bellevue, Washington, to resemble a journey into the very pits of Hades itself.

Time for a reality check. When one steps out of the emotional shoes of a nervous PC enthusiast and begins to look rationally at the relationship between Microsoft and gaming, a very different picture emerges. Most of the fears about Microsoft come not from any actual insidious plots being hatched at the company's corporate headquarters, but rather from a lack of knowledge about Microsoft's real plans – and capabilities. When examined in detail, Microsoft's gaming itinerary looks less like the ploys of some evil corporate entity and more like what it is – a comprehensive strategy from a huge company that wants to be sure it has a presence in every possible area of profitability. Monopolies aren't as easy to maintain as they used to be. Occasionally it takes some hard work to keep stockholders in the manner in which they have no doubt become accustomed.



That's not to say Microsoft isn't an aggressive organisation with world domination on its mind. Indeed, it could well be. But even if Microsoft wanted to monopolise the entertainment software industry, it's far from clear that it could. Despite what appears to be the company's best efforts, Microsoft has not yet managed to dominate the PC business software world (although its success in another area – PR dominance of the popular press – may keep a casual observer from noting that). It has almost no presence in desktop publishing, and in some areas it has especially targeted, like personal finance, it has lost out (in this case to Intuit's *Quicken*).

More importantly, Microsoft may find its unique skill base and experience is unsuited to a full-scale assault on the game world. Unlike the business software market, which to a large degree is iterative (improvements are made to the original program with each successive version) the game software market is dynamic and unpredictable. A game can grow from being an idea, to a paper-napkin sketch, to the proverbial 'next big thing' in a little more than a year, with maybe a team of just ten or less working on it. A business application 'hit', such as *Microsoft Word*, typically requires thousands of work-years, multiple versions, and many years of market penetration before it achieves dominance. Sure, the rewards may be greater. But the fact remains that it's a different discipline.

There is also a great deal more elasticity of demand for games than for business software. Most people don't need two word processors, but how many different one-on-one fighting games do you own?

So it is doubtful that Microsoft could leverage anywhere near its full muscle in the gaming sector – it just isn't streamlined for the job. And what is certain is that even a company as enormous as Microsoft couldn't release enough quality software to keep users from looking elsewhere for titles. (Even if it could, all it would take is one slip before its leadership position was lost. Look what happened to EA, the once undisputed champion of sports games). The only company to ever come close to a stranglehold on a game market was Atari, and everyone is familiar with the conclusion of that tale.

So what is Microsoft actually up to, and how will it approach the industry? Its game strategy is three-tiered: in ascending order of importance they are development tools, consumer software, and promoting *Windows 95* and *Windows NT* as game platforms.

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Microsoft's major entry in the development tools market is via SoftImage, producer of arguably the premier 3D animation program on the planet. Microsoft acquired the Montreal-based SoftImage in 1994 and it still functions largely as an autonomous entity. The program (also entitled *SoftImage*) was written for Silicon Graphics workstations, but this January *SoftImage 3.0* for *Windows NT* was released and this summer, version 3.5 will ship for SGI and *NT*.

With the purchase of SoftImage, Microsoft not only acquired a very profitable software program and some of the most advanced 3D developers on the continent, but it also enabled them to port

with a $10,000 high-end PC system and *SoftImage*, developers can now do what previously required $20,000-plus SGI machines

SoftImage to *Windows NT*, its multiprocessor, high-end operating system. This has not only helped to increase acceptance of *NT* in the workstation market, but has also staked a claim for Microsoft in the high-end of the computer graphics industry, aiming directly at Silicon Graphics' huge share of the content development tools market.

It's an easy sell for Microsoft to promote *SoftImage* to game developers. With a $10,000 high-end PC system and *SoftImage*, they can now do what previously required $20,000-plus SGI machines. *NT* platforms can now also be used as 'render farms' for SGI machines running *SoftImage*. The results: SGI has lowered the prices of its lower-end systems, and there is a trend afoot in the development industry toward using the more inexpensive PC-based systems. Blue Sky, developers of *VectorMan* and a *SoftImage* beta test site, still uses the four SGIs Sega bought it for *VectorMan*, but new hardware is exclusively *NT* based. And the savings have enabled the company to hire more artists. Microsoft reveals that more than 50% of *SoftImage*'s revenues come from the game market.



Second, Microsoft is publishing games. This is nothing new: Microsoft has been publishing games since the days of *Windows 3.0*, and of course, there has almost always been *Flight Simulator* (Microsoft's perennial, sleeper hit). What's new is that the game division has gone from a microscopic group (including one person working part-time on *Golf* and part-time on *Word*) in 1992, to a fully fledged division with 80-plus employees.

1 object(s) selected

Microsoft's console style controller looks good, is digital and inexpensive, and feels comfortable to hold

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What's more, the games themselves have gone from being 'little games' (such as *Windows Tetris* and *Solitaire*) to more robust products such as *Fury*³.

Back to the conspiracy theorists...

OK, so this is where Microsoft quits playing fair. Microsoft can dominate shelf space in game stores - forcing its competitors out - through its distribution power. Its strategy, according to insiders, is to go to a store and, say, 'We think you can sell Y copies of title Z.' If the store disagrees, well, they get nothing, and miss out on all profits on selling Microsoft's product. Result? Microsoft generally sells-in Y copies of Z - and the stores then make sure they sell them. It was this strategy that enabled Microsoft to get about 7,000,000 *Win 95* upgrade kits in stores last autumn, even though it only sold through about a third of them by the winter holiday season...

Certainly, Microsoft has none of the distribution headaches that plague many smaller publishers, and this fact (plus the recognised Microsoft brand name) ensures impulse buyers alone make most Microsoft games unqualified hits. According to its own figures, Microsoft could release a generic game box that says 'Microsoft *Windows 95* game enclosed' and expect to sell about 400,000 units - a figure to make the average PC software publisher drool with envy.

Still, since 1994 the number of PC game products in the market has almost doubled, so it is unlikely that Microsoft could continue to count on huge sales with volume 29 of the *Windows Entertainment Pack*. In a notion that may be almost inconceivable to most **Edge** readers, Microsoft has chosen to ignore hardcore gamers and focus instead on what it calls the 'casual' gamer, someone who buys only five to seven titles per year. That strategy focuses on the reliability of the Microsoft brand name, as well as solid but not necessarily ground-breaking games. It will keep the company on good footing (look how well it's worked for LucasArts). But it doesn't seem likely to lead to some massive takeover of the industry.

Looking forward into 1997 and beyond, Microsoft plans to continue to target the casual gamer, as well as releasing some titles that should get the attention of hardcore gamers. The most remarkable thing about Microsoft's game publishing strategy, though, is its breadth. Rather than concentrating solely on one genre, the company has products coming in the shape of sims, action, sports, strategy, on-rails shoot 'em ups, god games, and more. (See page 62 for previews of some of these.)

The other aspect of its gaming consumer products line is hardware, specifically joysticks and joypads. Selling game hardware is a new business for Microsoft, and one that seems to be introduced not so much for the long-term strategic benefit as much as for a quick (albeit low) margin of profit. Its SideWinder joystick, which uses patented optical technology to give the benefits of both an analogue and digital stick, has been well received, and

1 object(s) selected



Microsoft has also shown its game pad at E[3]. Bearing a striking resemblance to the Nintendo 64 pad, it is comfortable in the hand and should do well with the arcade-style games that are becoming increasingly prevalent on the PC. Microsoft also recently acquired Exos, a Massachusetts-based company that has a force-feedback joystick

By far the most important part of Microsoft's game strategy, however, is its presentation of *Windows 95* as a legitimate gaming platform, as distinct from *DOS* as it is from the N64 or Saturn.

The major hurdle to gaming on the PC has always been ease of use. Installing DOS games has traditionally been even more difficult than installing other PC software. With multiple standards for video cards, memory hassles created by *DOS'* 640K basic memory limit, and the general user-unfriendliness of the system, getting games to actually work is sometimes more of a challenge than the games themselves. Some *DOS* games suffer a 35% or greater return rate simply because they cannot be successfully installed on the user's hardware.

Developing games for a *DOS*-based PC results in similar nightmares, as game programmers have to write routines for every single video card, sound card, and possible system setup in advance. It's no surprise that they've often failed to cover all possible combinations. And it's similarly unsurprising that this has generally left PC games the strict domain of hardcore gamers and computer enthusiasts.

With *Windows 95*, Microsoft seeks to change all this. Not only does *Windows 95* make installation easier, it also makes game development easier, thanks to a series of developer APIs (Application Programming Interfaces) and libraries known as the Game SDK (Software Development Kit). To get the Game SDK, developers must simply join the Microsoft Developers' Network, which costs around $500 per year – about the cost of goods of the CDs and manuals the average developer receives in that time. Microsoft then supplies these software libraries to game developers, making the process of developing a game designed to work within *Windows 95* a whole lot easier. The major component of the SDK is the series of APIs known as *DirectX* (see below).

The main complaint about developing for *Windows* is that, as a program that puts a layer of software between the hardware and the user, it simply cannot provide the performance needed for a high-speed game. To get a game to run fast under *Windows*, developers generally have to break all sorts of rules – resulting in the same basic headaches that occur under *DOS*. *DirectX*, by providing a set of standard APIs, fixes some of this. Microsoft has 'broken the rules' of standard *Windows* development to gain speed (such as *DirectDraw*'s ability to write straight to VRAM in a window). And as long as developers stick to the 'broken rules' Microsoft has developed for the *DirectX* APIs (written in extremely





Some of the graphical capabilities of Microsoft's *Softimage*. Originally SGI-only, it now runs on *Win NT*

Continued next page

Direct X appeal

The *DirectX* APIs provide a software buffer between a PC's hardware (including all add-ons, such as joysticks, sound cards, and video cards) and the software application (say, a game). By writing to the API, instead of directly to the hardware, developers can be sure that their software will function on all PCs running *Windows 95*. There are five elements of the *DirectX* API:

1) *DirectInput* provides support for digital as well as analogue joysticks.
2) *DirectPlay* enables multiplayer gaming by providing built-in support for LANs (Local Area Networks) as well as modem play, using *Windows 95*'s networking infrastructure.
3) *DirectSound* provides transparent, device-independent access to sound cards and offloads sound processing duties (mixing, say) directly to sound hardware.
4) *DirectDraw* enables writing directly to VRAM inside a window, and supports graphics accelerators where present.
5) The *Direct3D* API (scheduled to ship this April as part of *DirectX II*) has three main components: a high-level retained mode, which contains the Reality Lab 3D engine; a low-level immediate mode for developers who prefer to use their own 3D engines; and a hardware abstraction and emulation layer that interfaces directly with the hardware. The emulation layer will enable CPUs to emulate the features of 3D acceleration cards if they are not present. *Direct3D* will also support z-buffering, Gouraud shading, full-light sourcing, specular highlighting, tri-linear mip-mapping, and depth cueing.

3rd Party Apps
DirectPlay
DirectSound
DirectDraw
retained
Direct3D
immediate
future expansion
HW abstraction/emulation
Hardware

Continued



Many prerendered intros are now manufactured within *Softimage*, from wires to rendered models

low-level code), everything should run fine.

By writing to the *DirectX* specifications, developers can be sure that their software will run on any PC running *Windows 95*. Microsoft takes care of the irritating task of developing drivers for all the different types of hardware that the game might be played on, not to mention doing extensive compatibility testing. The time and effort saved by being able to write to one spec also decreases development time and cost.

More importantly than just making it easier to develop and play games on a PC, the *DirectX* APIs make practical for the first time something that has always been possible on PCs - Plug 'n' Play, or widespread support for a variety of novel hardware. This is the single most exciting aspect of *Windows 95* as a gaming platform, and it is not an understatement to say that this could be the single-most important advance in PC gaming technology of the last decade.

Until now, if a hardware developer created or implemented a new technology, like 2D or 3D graphics acceleration, a new input device, a new sound card, or anything that took the PC past the stock 'vanilla' stage, they would find they had created an orphan technology, at least as far as game developers were concerned. Until the device gained enough acceptance in the marketplace, few companies would go through the trouble of writing the drivers to support it. Without the games, few upgrades were sold, and few new technologies were adopted. For example, despite the fact that practically every graphics card sold since the introduction of the 486 has had 2D graphics acceleration, few PC games have ever taken advantage of it.

Microsoft could release a generic game that says 'Win 95 game enclosed' and it would sell 400,000



Microsoft's basketball title, *NBA Full Court Press*. Crowds are not in place and gameplay still needs some work

The only real standard to emerge on the PC since the days of Creative Labs' Sound Blaster card was the pathetic MPC (Multimedia PC), a *Windows*-based standard developed at the dawn of the multimedia age. With an MPC-compliant PC, all you could really be sure of was that your machine could run the latest and greatest encyclopaedia CD-ROM. Yawn.

Now that's all different. With Microsoft developing (or more correctly, having hardware manufacturers develop) drivers for every hardware device conceivable, developers can now blithely write to the spec and not worry about supporting various hardware elements. If additional hardware is there, *DirectX* will sense it and use it. If not, the CPU will emulate the missing hardware.



Not every developer, however, is totally thrilled with the Game SDK. 'I like to access everything,' says one. 'Now we're going to have to put our stuff into a "black box". It's kind of disconcerting to have that control taken away from you.' It's also important to note that because *DirectX*'s features are present in software, fairly powerful machines are needed to be able to take advantage of *DirectX* in any practical way.

It's clear that with the introduction and continued support of the *DirectX* APIs (which were developed with strong input from leading PC game companies), Microsoft is making an intense effort to support *Windows 95* as a game platform. In the short term, the reason why is equally clear. Despite what people say to themselves to justify the purchase of an expensive home PC, games are the most popular home application, by far. An internal Microsoft estimate is that 40% of the time a home PC is on, it's running a game. To ensure that *Windows 95* is accepted as an OS in the home, then, there must be a game presence on it - especially considering first-time buyers of home PCs are far less likely to withstand the rigors of installing a DOS game.

The *DirectX* initiative provides technologies that Microsoft will be able to leverage in many other areas (and one of the first will be *ActiveMovie*, a new digital video standard that provides for MPEG-quality video and Internet hooks, among other things). But the real future for *DirectX* and the Game SDK will be revealed with the release of *DirectX III* in August and *DirectX IV* in November. That's when *DirectPlay 2.0* ships.

DirectPlay 1.0 provides APIs that enable easy LAN and modem play. *DirectPlay 2.0* goes one further, enabling play over the Internet and online services. Of course, despite Microsoft's best efforts, the Internet is one of the few areas where it's not the market leader. Yet.

For developers, things will be much the same. They write to the multiplayer *DirectPlay 2.0* spec, much as they do now to the version 1.0 API. In *DirectPlay 2.0*, however, there are drivers for TCP/IP (Transmission Control Protocol/Internet Protocol) connections over the Net, and any that third parties (such as online services like *BT Wireplay*) may provide later. Now, multiplayer games are as easy to play online as they are over the office LAN.

On the other side of the network line are servers, also provided by Microsoft. Due for release in August is the *DirectPlay* Lobby Client software, with the release of the *DirectPlay* Lobby Server and *DirectPlay* Game Server due in November. A beta version of the Lobby server will be released in August, too.

There's nothing better than playing against another human, and technology is finally approaching the point where multiplayer online

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DirectPlay away

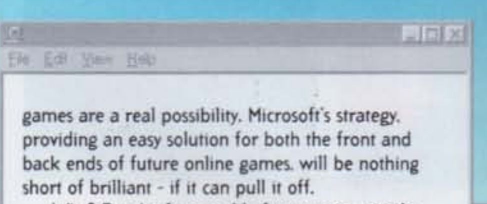
For online play, calls to the *DirectPlay* API on the client PC will go through any drivers for proprietary communications networks, through the *Win 95* networking and communications APIs to the hardware, and out over the Net.

Gamers will 'meet' in the lobby at their service provider and play games coordinated by the game server, which works with the money server (whichever the service happens to use, *DirectPlay 2.0* is designed to support anything which calls the *Client Billing* API).

Gamer's PC
Gamer's PC
Gamer's PC
DirectPlay Service Provider
(Network backbone - Driver) modem, LAN, private online service, internet
Game server
Money server
Lobby server

Application
DirectPlay
DirectPlay Service Provider (Driver)
Windows networking/comms
Hardware
Network & other DirectPlay Computers

1 object(s) selected



games are a real possibility. Microsoft's strategy, providing an easy solution for both the front and back ends of future online games, will be nothing short of brilliant - if it can pull it off.

Why? For the foreseeable future most people will be using a Microsoft OS on a PC, especially when playing games. However, many analysts predict that within a few years a sub-$500 Net-cruiser box will be a reality. Although Microsoft's own Simply Interactive PC (SiPC) initiative is aiming to cater for this emerging market, it is by no means assured victory. Why? Because the application software for these boxes may reside remotely (over the Net), and the technology for Internet apps may be provided by a company like Sun or Oracle (both of whom are keen to promote their own non-Microsoft OSs). Microsoft does, however, have an ace up its sleeve - and that is *DirectPlay 2.0*. By convincing PC game developers to tool up and support Microsoft software today, it ensures they will favour using it tomorrow.

What Microsoft stands to gain from promoting *Windows 95* as a game platform is an increased share in the entertainment market, the consolidation of home users around the OS, and the development of technology that can be leveraged into other areas of the corporation. But these reasons are nothing compared to what the company stands to lose if the non-Microsoft set-top box becomes a reality.

Of course, the console-versus-PC war has raged on among gamers for years, and with a few exceptions, *Windows 95* doesn't change many of the arguments. You can't play computer games on a big-screen TV, lying on the couch with a beer in your hand. On the other hand, you can't generally play online games on a console. Another advantage Microsoft and the PC has is that the PC is an open system. Anyone can develop for it, royalty free, and gaining full access to the Game SDK costs a mere $500 per year, far less than the going rate for a PlayStation or Saturn development kit - around $20,000. So, while the most innovative designers in the world - Suzuki, Miyamoto, and other top talents - are Japanese, and develop for consoles first, the next 'garage triumph', such as *Doom*, will certainly appear first on the PC.

Do Sega, Sony, and Nintendo view Microsoft as a threat? Maybe they should. Between 1994 and 1997, inclusive, US underwriter, Robertson, Stephens & Co, estimates that the hardware unit sales of consoles will decline by 6.5%, while home PC sales will rise 107.1%. Sources at Microsoft contend there is 'no way' 32bit sales will ever equal 16bit sales (which peaked at about 20 million for Sega and Nintendo). Both Sega and Sony have began publishing titles for the PC, and while the average PC configuration is still too underpowered to play the likes of *VF2* as well as a console that costs a tenth as much, this fact is likely to change as 3D accelerators come down in price. Perhaps **Howard Lincoln**, NOA's president, put it best when he said, 'Do I think they [Microsoft] want to eat our lunch? Sure. Do I regard them as competitors? You bet.'

Continued next page

Incorporating new *Win 95* gaming technology, four new titles could place Microsoft on the gaming map

Continued

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Close Combat

Format:	*Windows 95*
Publisher:	Microsoft
Developer:	Atomic Games
Release:	summer
Origin:	US

Atomic, best known for the *V For Victory* series, looks to have truly outdone itself with this strategy game. You're in command of either the US 29th or German 352 Infantry as the US attempts to fight from Normandy just after D-Day, in this narrowly focused simulation.

What is most impressive about the game is the extremely sophisticated AI, developed with the help of a combat psychologist. Depending of their fatigue level, the pressure of enemy fire, and their raw ability, troops may respond slowly, or not at all, to your orders. Send a tired squad to take a difficult objective and it may retreat if things become too difficult.

This feeling must truly mimic what actual battlefield commanders felt, making *Close Combat* a truly immersive strategy game.





For a game that conveys true desperation, play *Close Combat* and try getting a troop across the bridge into heavy fire with no tank support

Deadly Tide

Format:	*Windows 95*
Publisher:	Microsoft
Developer:	Rainbow America
Release:	autumn
Origin:	US

The on-rails shoot 'em up is a well-defined genre. Still, Rainbow America (the developers of *The Hive*) has taken some steps with *Deadly Tide* to ensure it stands out from the *Rebel Assault*-clone pack.

The game features gorgeous 3D graphics, designed by Amblin Imaging Designers (responsible for *SeaQuest DSV* and *Star Trek: TNG*). Also, Redbook audio combined with a realistic 3D sound engine make the audio experience compelling as well. On the gameplay side, you can actually move your craft through a full 360° of freedom, a greater level of control than provided by most games of this genre.

This is definitely a title aimed at the 'casual gamer', and it should be one that will satisfy them.





On-rails shoot 'em ups may not be to everyone's taste, but at least Rainbow America's *Deadly Tide* looks beautiful

Hellbender

Format:	*Windows 95*
Publisher:	Microsoft
Developer:	Terminal Reality
Release:	autumn
Origin:	US

Hellbender, the follow up to *Fury*³, should follow *Fury*'s dependable gameplay – fly above the clouds, and shoot things; swoop below the clouds, pick things off the ground, and shoot things; fly in caverns under the planet's surface, and shoot things. Animated cut scenes between the levels will advance the plot – you're in a civil war in space.

Where *Hellbender* should raise eyebrows, though, is in its complete support for *Direct3D*. The game will feature z-buffering, tri-linear mip-mapping, depth cuing (fog and haze shading), realistic light-sourcing, and will run accelerated 3D beautifully with 3D cards. Though it's not certain, it hopefully will run decently without accelerators.





Of all the forthcoming Microsoft titles, none should demonstrate the PC's newfound 3D like *Hellbender*

Monster Truck Madness

Format:	*Windows 95*
Publisher:	Microsoft
Developer:	Terminal Reality
Release:	autumn
Origin:	US

This is not your typical 3D polygonal racing game. Since when could you run over and crush cars in *Ridge Racer*, for example? But in *Monster Truck Madness*, you have entered the strange obstacle-laden universe of really big trucks.

Somewhat like *Sega Rally*, this title features extremely accurate physics, circuit and drag racing modes, four-wheel steering, six degrees of freedom, and some of the goofiest-looking vehicles known to man. (Did you know that monster trucks float, thanks to their fat tyres?) With eight-player network support, digitised sound (from Big Foot, no less), fully rendered trucks, tracks and obstacles, – not to mention the ability to custom-configure your truck for different terrain types – *Monster Truck Madness* is certainly one to look out for. Not to mention the fact that it will be the first title to support the Jolt force feedback stick.





Realistic physics and stunning graphics give *MTM* potential

1 object(s) selected

Bill Gates talks

One doesn't necessarily have to know how to beat the MegaDemon in *Doom* to run a successful game business. But it would be nice to think that a man who wields so much power over gamers at least knows his Command from his Conquer. And not for one minute should **Bill Gates**' power be underestimated. As the biggest consumer software company in the world, Microsoft has got serious muscles. And as its visionary leader, Gates gets to flex them.

But why has it taken Microsoft so long to notice the gaming world? And now that it has, is the $6 billion (in annual sales) giant going to play rough, or prove itself to be a valuable addition to the gaming community? And if Nintendo's **Howard Lincoln** is correct in fearing Microsoft wants to 'steal his lunch', just how hungry is Bill Gates feeling?

Edge met with Bill at Microsoft's HQ in Redmond, WA, for the following interview.

Edge Given the success of Microsoft's *Flight Simulator*, and the boom of the PC game industry, why hasn't Microsoft put its full weight behind an assault on the gaming world before?

BG We've always had our hand in it to some degree. Putting one or two games in with the operating system has always been a good move, and you'll always see us do it. So we've always had a few titles, but mostly developed outside.

We saw the embarrassment of how hard it was to install games, and the conflicts between *DOS* games and productivity applications after we shipped *Windows 3.1*. And we saw it as holding back the home computer market. You really shouldn't have to have an expert friend to dig into your configuration file.

Edge So are the games Microsoft is developing primarily designed to showcase *Windows 95*?

BG No, they're to make money. And so you'll see a lot more titles coming out from us internally – a lot more than ever before – and game titles coming out of the joint venture with DreamWorks Interactive as well.

Edge Let's forget *Windows 95*, and your other businesses for a moment. What do you feel Microsoft can bring to the party as a game developer?

BG People who play games a little bit are going to look at the individual games…

Edge You think that's how Microsoft's publishing effort should be appraised?

BG Ninety percent will. From 10% of the people you can get a notion that we really know how to test software; how to distribute software; how to take a long-term view of building very rich technologies into these games. Things like games that use voice input – that's going to happen, or games that are multiplayer in a deep sense, interacting across the Net.

Edge The flip side of the coin: to what extent should gaming's current major players fear Microsoft's arrival? (Nintendo of America's President Howard Lincoln expressed considerable respect for Microsoft, but claimed awareness that 'They want to eat my lunch.').

BG [Smiles] Well, not really. I mean, are game consoles and PCs in competition? In the sense that you walk in and choose between a Sega and a Sony, it's not quite the same. Usually, if you want a PC and the kind of richness and general purpose things that it provides (bring your work home, write your homework, etc), then you generally know before you walk in to the store that you want that. It's possible that when you buy a PC, then you say, 'Hey, now I don't need to buy a game platform, I'll just do everything on my PC.'

Edge So you don't see either the PC or the dedicated game machines eventually dominating the market completely?

BG In terms of one totally wiping the other out, no. I'm a PC lover and so I can tell you the schtick from somebody who's got a bias toward the PC. For every kid [with a PC] – even at a young age – there's great learning software. It's worth it if you can afford it. It's great exposing them to that.

Then as they move up into the age where they want action games or whatever, then hey, the PC's going to be there. And it is the most flexible device. The fact that you can actually store things away, the fact that you can add on to it, the fact that it has a display with better resolution, it's got a keyboard. There's just a lot of things you can do with a PC you can't do with a game machine.

And so, I think as PCs have very high penetration into homes, it's possible there would be a substitution effect against game machines. But, that's not to say the game machine category won't be there.

Edge One thing the PC doesn't have (that companies like Sega, Sony, and Nintendo do have) is a dedicated marketing operation whose sole purpose is to promote each game console as the ultimate gaming platform. Are you willing to take on this role for the PC?

BG I'd say it's a role, and it's up to us to do that. Certainly to evangelise to software developers, that is totally our job. On a relative basis compared to a few years ago – and even on a relative basis to some of those game console suppliers – and in the absolute, I think you'd find that ISVs [independent software vendors, ie game publishers] say we're doing a pretty good job.

But it is our job to do the evangelism. Intel is often a help on these things, as are some of the system manufacturers, some of the board and chip manufacturers. But we're in the lead spot.

In terms of a message to consumers I think content rules. Nowadays, you don't see many ads about the consoles – instead you see ads about the games you can play on console, or see a cool kid playing these games, and you'd be like him if you bought one.

Edge Do you see content currently stronger on the PC, or on the games machines?





Microsoft was once the second largest company in Redmond, due to Nintendo. No more, however

Photography by Mark Koehler, the Lakeside school and The Microsoft Archive

Are game consoles and PCs in competition? In the sense that you walk in and choose between a Sega and a Sony, it's not quite the same

Continued next page

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BG I think boxing games are better on the dedicated consoles. But if you get really broad and include *Myst*-like games, I mean, give me a break! There you need the storage and richness that comes with a PC.

The term 'game' is a very broad term. The phenomenon of what's gone on with the game consoles is a fairly narrow part. There's a particular demographic with which the game console is strong, but the PC is much broader than that. So they both have relative strengths.

Edge But the console people would reply by pointing out that as long as a £200 game console can do things that a £1,500 PC can't do, there will be a market for it.

BG We're not going to have any more inversions like that. PCs will be a superset in every way – certainly all the PCs that ship in '97, and you'll never see that inversion re-emerge.

Edge So you're saying that the PC's graphics power is going to take off and never look back?

BG Well, it's my job to see that this happens. We are keenly aware of the comparison [between PCs and the 32bit game machines] and I have almost no doubt we'll meet that test. The only advantage that the Sony PlayStation has is better texture mapping than most graphics cards for the PC. But when we demonstrated at the Windows Hardware Engineering Conference [last April], the 3Dfx demo of *Valley of Ra* was way better than any game console. And that's a special add-in card that will be on PC motherboards early next year.

Philips CD-i was an attack on both game console and PC. But it was a terrible game machine, and it was a terrible PC

Edge Playing devil's advocate a little, we're going to champion game consoles. And one huge advantage that they have over PCs is that you play games on the big-screen TV in the comfy living room. Whereas to play games on the PC you typically have to sit close to the screen, alone, in a straight-backed chair, in the 'home office'.

The console way is much more fun.

BG You have a very good point about the device that you sit close to and use with a keyboard, versus the device that you sit far away from. With the PC – because of the resolution of the screen – you can read text and you can sit close to it. And it's got a keyboard.

The TV is typically a larger-size screen and the dot-pitch isn't nearly as good, but you sit far away and you mostly watch video-type material. So for multiplayer [gaming], where you're both on the same screen, either you're going to [play on a game machine] or you're going to plug the PC in so that it's driving your TV. And there is more and more of this going on. A lot of projection TV sets are going to have VGA connectors. And VGA-to-NTSC conversion is not very expensive. We need to make that easy.

Edge But this is as much a battle of household territory as anything else, and the game machines have already grabbed the prime gameplaying locations: under the main TV, and in the kids' rooms. Won't games inevitably be played in the living room and not the home office?

BG For certain types of games, that's true. Sometimes, you'll have a PC in the living room because it will be the central controller there. But you're right, the scenario where you've got your game machine in the living room and you've got your PC in the den, that may not go away.

But the game machine has a pretty narrow appeal, in terms of the demographic. For really young kids, for girls, and for a lot of adults, the breadth of software that's really been out there for the game machines is not very rich. It's not like people do encyclopaedias, or movie guides, or learn arithmetic from videogames.

Edge Sure, but is this because, with no keyboard and no hard drive, the game machines can't handle these types of software, or is it simply because the market hasn't asked for them yet?

BG I'm not sure how you separate those two things out!

You know, it was always possible that one of the game machine guys was going to create some expandability and essentially grow it up to a PC. It was the Philips system, called CD-i, which was sort of supposed to be expandable (in as much as Matsushita showed it with a hard drive in it) and it was supposed to also be a games player type thing. It was an attack on both game console and PC. It was a device that kind of basically got caught in the middle. It was a terrible game machine, and it was a terrible PC.

I can say that now because the thing failed. But Philips put real money into it. Well, I knew I was worried about it. They put real money into that thing and they had a lot of content. There was a lot of evangelism going on, and some fairly creative ideas. They never did figure out, though, that you had to have good action games on the thing, so the hardware design and the evangelism never focused. It was always too soft. A little bit of golf or a little bit of opera, but nothing jazzy enough to make it move.

Edge If the CD-i needed good action games then, any world-conquering game platform is going to need good action games now. But – as we've already pointed out – a £1,500 PC can't do many action games as well as a £200 console.

BG Oh, I agree. But we're getting good action games. I mean, look at the number of things we've done to get good action games onto the PC.

Microsoft's evangelism even includes the software developers inside these game console companies. You'll see most of the console companies taking their software assets and porting them over to the PC. That's a big step forward for us. We have an operation, which is a joint venture between Microsoft and SoftBank, called Game Bank. So if the developer of cartridge games doesn't want to do [the PC conversion] themselves, than there's a company there that will do it for them.

Meanwhile, we convince them to do it directly. So, I don't think there will be many action games that are on game consoles that aren't on PCs and I think there will be quite a few on PCs that aren't on a game console.

Edge And where the two games coincide the PC version will compete with, if not be better than, the console version?

BG That's our job. And so if we fall short then we say, 'OK, let's fix that.' It's very hard for a device without storage to come in and compete with a lot of these things.

You want rich games to remember what level you're at, what you've done, and how to connect up to your friends.

Edge Microsoft is increasing its focus on the gaming industry







From poor nerd to... unfeasibly reach nerd. The young Bill Gates (standing) was into computers even then (left). The Microsoft team in the early years – now a company boasting hundreds of millionaires (middle). Bill Gates today (right)





in three major ways. First, now more than 50% of Microsoft-owned Softimage's revenues come from sales of graphics software to game developers. Second, *Windows 95* is now being promoted as the best way to play games on a PC. Third, Microsoft is ramping up its game publishing division, from releasing just four titles in 1995 to a scheduled ten in 1996.

Is this merely a few divisions of a large company unilaterally moving to the gaming sector, or is this part of a larger company objective?

BG Well, hopefully it's a larger company objective [laughs]. We certainly set out as such. You know, the use of the PC in the home environment is increasing and gaming is a big part of that. People love to play games, and most of the things you do to make games better are things that apply to other software as well. I mean, enabling the audio to work well and the graphics to be fast. Games are a great way to measure progress there because game writers are just super-demanding, and they've basically ignored *Windows*. Up until *Windows 95*, the way you wrote a game was by writing around the operating system. Even Microsoft's own *Flight Simulator* was a *DOS* product, and it's only now that we're building the *Windows* version of that.

And it was all just about speed. That whole notion of 'Do our graphics layers give flexibility, or do they just slow things down?' Well, there's no harder-core audience than the gaming community to go out and ask, 'What does it take?'

It always causes problems if you go around the operating system. I mean, like installing *DOS* games a couple of years ago, where you had a different audio card, or you sometimes used *Windows*, but you'd like to run games that didn't work under *Windows*. It was a nightmare.

And we're just working our way out of that. With the broad popularity of *Windows 95* and the support from the gaming guys and the hardware guys, we're finally to the point where a person can say, 'Yeah, you don't have to know somebody who's an expert to do these things.'

Edge And *Windows 95* has really been the focal point for all this effort, with providing an easy-to-use 'plug-and-play' environment?

BG Games don't use the file system very much. So, basically, until *Windows 95*, games were written to the hardware. Now, with the variety of audio cards and graphics cards that are out there, it was becoming as much of a nightmare for the developers – testing and installing – as printer drivers were for productivity applications before, say, a decade ago when we finally started to get those into the operating systems. Nobody today thinks, 'Oh, I'll write a unique print driver.' That's Microsoft's problem.

And so we said, 'Hey, we're going to make *Windows 95* attractive for game developers, so they'll stop writing *DOS* applications.' I'm sure some people here were sceptical about ever getting those guys to stop going around the OS. Part of our breakthrough was that it turns out that – because the blitters all worked a little bit differently – PC hardware actually has some acceleration capabilities that the *DOS* people weren't using. But by abstracting those blitters out, we actually gave people a layer where games often would run faster than they had with *DOS*. And this started to open peoples' minds.

Edge Let's talk about *Direct3D*, Microsoft's effort to make all PC graphics accelerators compatible with all software (when running *Windows 95*, naturally). *Direct3D*, in theory, provides the illusion of a standardised 3D graphics acceleration specification. Because of the slight overhead of the *Direct3D* APIs and drivers [having to 'go through' *Windows 95* slows the program down a little], when one writes directly to the hardware and bypasses *Windows 95*, there will always be a marginal speed boost.

Since marginal increases are often what separates a killer app (*Doom*, *Mario*) from the 'also rans', isn't there a danger that game developers will still bypass *Direct3D*, and hence Microsoft's software, in pursuit of a competitive advantage?

BG No. Three percent performance gains do not make the difference between a killer application and…

Edge You're sure *Windows 95* will only suck a 3% performance loss?

BG Our job is to make sure that 3% is all it is.

The thing that you're spending time on is drawing the polygons or filling in the textures, and for this the API is thin to the accelerated hardware, and you're not going through it again and again. If we find a case where somebody wants to go to the hardware [thus bypassing *Windows 95*], if they're really going for that extra 3%, we'll tell them they're crazy because it'll make their job a nightmare. They'll never be able to keep up with it. But if [the advantage of bypassing *Windows 95*] is more than 3%, then we need to make sure our API improves.

> You pay for the connectivity to the Internet. Because the competition to provide that is immense, multiplayer gaming really can thrive

Edge Online gaming is currently the industry's holy grail. When do you think that true multiplayer, online gaming will be a reality?

BG The lack of success of, say, the ImagiNation Network [a US online gaming site], has always been interesting. I don't use ImagiNation Network a ton, but I do use it a little because I have some people I play bridge with over the system. I think that – if it wouldn't crash [laughs] – it's pretty nice. But I think the pricing model there has held things back, and so it just didn't get to critical mass as a place people come to. With the Internet, on which you are going to be buying the connectivity for partly nongaming reasons – and there's no doubt the competition to provide that connectivity is going to be immense – it means that multiplayer gaming really can thrive.

There's ourselves (and probably a couple of dozen start-ups) who believe the Internet will be the place where multiplayer gaming takes off. And so the level of investment is phenomenal. This is a gold rush period for anything related to the Internet, and games will not be any exception.

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windowview

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Edge So what is Microsoft doing to make online gaming a reality?

BG What we're doing with these direct multiplayer game APIs [as part of *Windows 95*] is abstracting the need for the game companies to bet on what type of connectivity comes along. If they just use the *DirectPlay* API, then [their games] work on local area networks, they work on the Internet, they work on a local server, dial up – and the user just gets to pick how he or she wants to go out and meet people.

DirectPlay will help on multiplayer games because, in the past, somebody doing multiplayer games had to think it through for themselves – 'OK, what do we want to do about meeting lobbies? What do we want to do about protocols?' and all those things. Now they don't have to worry about these things. And so, two years out, the percentage of PC games that will have a multiplayer aspect will be 70% or 80%.

Edge Do you play games yourself?

BG Well, I'm a reasonably avid poker, bridge, chess, go, and checkers player.

I played the videogames of the time, when I had more time: *Frogger*, *Pac-Man*, *Defender*. And back at Harvard I played with the PDP 1 that had the original *Space War!* game, with vector drawing. The original cool PDP 1 application, in my dorm at Harvard when I wanted to waste time, was *Breakout*. That was the cool game.



Nintendo isn't locking people up so they can't write for the PC – it was able to do that for other game platforms, but never the PC

Edge At the time of Microsoft's creation, did you ever think about making games?

BG When we first started Microsoft we thought, 'Well, should we do games?' And I went and met Nolan Bushnell [the creator of *Pong*] and hung around Atari, and talked to them. We always thought, maybe we'd get around to doing games in those early days because the kind of hacks that you had to do to make the games work were kind of appealing. But, that never became a focus.

Edge Do you not think that with an 8bit game machine in over one third of all US homes [the NES], Nintendo could have leveraged its success into other areas of the computer business?

BG Oh, it's unbelievable. I mean, we're in this funny little suburb called Redmond in Washington and, when we first moved here I said to people, 'Hey, we're the second largest software company in Redmond.' At least during the fourth quarter, good old Nintendo would outsell us. Now, that was when they ruled the roost, and the fad was in full swing. And now, it's not quite as monolithic.

But, when you talk about business, 'fear' is maybe not the perfect word to use. You have to have a real sense of what good work other companies are doing. You have to acknowledge their work and figure out, well, can you partner with them? Or do you internally or, through other partnerships, find those same things?

On the PC platform, we can recruit a lot of game developers. Nintendo isn't locking people up so they can't write PC games. Historically, Nintendo was able to do that versus other game platforms, but never the PC because it wasn't on its radar screen.

So I don't think fear is the right word.

We've always had this question of the boundary line between game machines and PCs. When **Trip Hawkins** was first starting 3DO and talking about his visions, which were very good – he's a very smart guy – I wondered, 'Wow, jeez, maybe he's going to draw the line between the PC and the videogame a little bit differently than I'd like to see it.' [laughs] But now he's not – at least as far as I know – a force in this arena.

Edge So what happened to Trip Hawkins' vision? Why didn't the original 3DO machine work out?

BG Well, there's this notion that you can sort of rip off Japanese companies and – no really, I mean, that's sort of the 3DO model.

It's kind of rude [laughs] to have a business model where you let a Japanese company do the commodity part, which you're licensing to them non-exclusively, so they don't get any of the upside of the software royalties, but they get just the console part, which is the money-losing part, and you keep the game royalties.

It's hard to say why the pieces didn't come together [for 3DO]. If the price had been different at one point, if they'd have had a few more software developers... But the business model always had a bit of a problem in that 3DO didn't have enough money to make the platform successful and yet the piece Matsushita was given – even if things went well – well, they were just going to be a commodity supplier of that piece.

Edge So do you think that any game machine thrive in the price bracket between £400 and, let's say, £1,000? History would say no.

BG I think it's pretty tough. It's pretty tough to squeeze something in the middle there. [When considering game machines] people are going to say, 'OK, a few hundred bucks to keep my kid happy... I guess.' Although they probably don't realise how many cartridges they're going to have to buy as part of that [laughs].

Edge What does Matsushita have to look forward to as it plans to enter the arena with M2?

BG [Laughs] I think it's tough for somebody to come in with a new platform at this point. I just think it's very hard to establish a new platform.

Everybody, in my opinion, is very impressed with how well Sony has done. I mean, if you'd handicapped Sega, Nintendo and Sony a couple of years ago, most people would have put Sony as third most likely to succeed. Fourth, really – 3DO had a lot of mindshare. And the fact that Sony's done as well as it has is a credit to it.

Then again, if you look at it financially, nobody's making money like Nintendo made in the good old days.

Edge A lot of people are saying that if the game industry is to move forward, it has to start producing games which resonate with adults. A lot of people are looking to the continued increase in graphics resolution and sophistication as the key to doing this, as adults will play once the games look less cartoon-like and more like real life.

Do you buy this reasoning?

BG I don't think so. I mean, if you get better graphics then maybe you can do different types of games, which may draw in those people. But it's not like you take boxing and make it high-resolution and then all of a sudden 50-year-old men say, 'Wow, hey, I'm not going to the football game tonight, I am going to play that new boxing game.' [laughs]

Until you really get the Internet, where there are other people and an element of socialisation, I think it's pretty hard to pull the adults in. I think that with the Internet, and the kind of socialisation that's possible, the boundary between what's a game and what's not a game has always been a little bit unclear. And I think it's set to become even more unclear in the future.

I mean, if you're walking around in a fantasy space and you can do things that aren't normal things, is that a game? Or is that just an Internet superchat kind of thing? Well, the taxonomy is going to get so rich, that it won't be a black-and-white dividing line in this new world. Particularly with the PC, where you're going to get so much power and a high percentage of them with an Internet connection as part of that package.

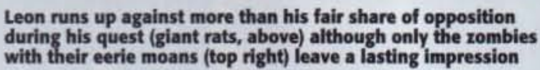
As we fudge that spectrum, then we'll start to pull in a much broader demographic.

I mean, that certainly is our goal.

Thor The Elemental King Lore

Format:	Saturn
Publisher:	Sega
Developer:	Ancient
Price:	¥5,800 (£40)
Release:	Out now (Japan)









Leon runs up against more than his fair share of opposition during his quest (giant rats, above) although only the zombies with their eerie moans (top right) leave a lasting impression





***Thor*'s role playing elements are no more than devices to advance the plot, with the main emphasis of gameplay being heavily placed upon fighting and exploring**

For a game that seemed so well suited to its host machine when it appeared on the Mega Drive in 1994 as *The Legend Of Thor* (and in the west as *Beyond Oasis*), there's no doubt the transfer of its sequel from 16 to 32 bits will be seen by many (jaded game journalists especially) as something of a waste of time. But the Japanese game market is very much a closed shop with no pandering to the limited software tastes of westerners. There's no stigma attached to a next generation game that refuses to blind its audience with myriad effects, and like other recent Saturn action RPGs, such as *Shining Wisdom* and *Magic Knight Rayearth*, there's certainly no real striving in *Thor* to harness the Saturn's extra power. No scaling to speak of, no amazing rotation of the landscape and not the merest whisper of the dreaded third dimension.

Resembling a reject from a Ray Harryhausen Sinbad movie as he strides about in his billowing pantaloons, the hero Leon is in possession of all the movements you'd expect from this genre. He can attack, dash, jump and kick with combinations of all four, although his range of actions are still put to shame by some recent Super Famicom ARPGs (still the premier platform for this type of game). There are four different weapons to collect, all intrinsic to the puzzle solving that lies ahead; and by defeating the guardian for each area Leon can release an elemental sprite whose powers he can then summon – powers not surprisingly needed to progress to the next level.

Thor's fantasy-style plot is negligible, as is the inclusion of the term RPG. Chatting to a few nearby townsfolk only to discover there's a terrible evil lurking nearby merely serves to create a setting for the 'hack and slash' dungeon exploration that follows, while any character development is limited to upgrading your damage meter. Typical Japanese RPG linearities also rear their ugly heads when the







***Thor*'s puzzle elements aren't the most cryptic ever devised, but later in the game it's more of a case of reaching the switches rather than simply finding them (using a platform, left). Enemies are, on the most part, easily dealt with, although they reset after leaving each particular area**

game will only advance after talking to a certain person or visiting a definite location, with the malevolent evil kindly holding back until you've remembered to look in on that old man in the cave again. Just once it would be nice if you felt events were going on around you regardless of your actions (a feature that is already being implemented in recent 16bit Japanese RPGs).

Wisely, since his rather substandard design efforts on the dreadful *Actraiser 2*, **Yuzo Koshiro** has chosen to link his name only to *Thor*'s ethereal soundtrack, preferring to credit the game's design to the anonymous faces of his development team, Ancient. They've performed a solid enough job and there's plenty to do within the varied, if not particularly large, landscape. Without memory-hungry 3D graphics and CGI to take up room on the CD, players might well expect games of this sort to open up into massive epics – a situation that developmental logistics and pure economics dictate will rarely happen. Thankfully the action comes thick and fast, although the puzzles are rarely any more complicated than flicking switches in the right order or collecting keys to open up new areas. The slightly off-centre bird's eye view combined with the large size of the main character also makes navigating the different levels of the landscape somewhat hit and miss. What looks like an easy jump can prove frustratingly impossible, forcing you to ride on the heads of passing enemies in order to get a leg up to the next ledge.

It's a sad fact that in the four years since *Zelda III* wrote the book on how to create the perfect action RPG there haven't really been any advancements in the genre. In the end, *Thor* made the jump to the Saturn because the Mega Drive is no longer an economically viable platform and not because it offered Ancient the chance to stun the world with a new style of gameplay. With that in mind it offers a worthwhile diversion for fans of the original game.

Edge rating: **Six out of ten**





Once released, your elemental assistant follows you faithfully





Each of *Thor*'s levels comes with the obligatory boss to defeat. The first, Undine, has a formulaic attack pattern which is easily learned. It doesn't take long to realise that your newly obtained bow and arrow are the key to his downfall. His death sequence is particularly impressive (right)

Jumping Flash 2

Format:	PlayStation
Publisher:	SCE
Developer:	EXACT
Price:	¥5,800 (£40)
Release:	Out now

Level 1





You can ride atop this flying whale (above left). The game features many water pools (above right) – when you dive in, the soundtrack muffles as if truly underwater. Baron Aloha's image immortalised in a statue (right)

Level 2









The first of the game's two indoor sections (top). Its underwater stretch (above) is most atmospheric





Captain Suzuki, left, is your ultimate foe in this sequel as you pick up Robbit's reigns once more

The original *Jumping Flash*, released back in July 1995 (E22), was the most prudent example of what 32bit processing power could bring to videogaming beyond mere graphical extravagance. Taking a firmly established theme – the platform game – and twisting it into a fully three-dimensional experience, it stood practically alone as a truly original piece of PlayStation software.

Presented in exactly the same fashion as the original, *Jumping Flash 2* sees you working on the same side as your former adversary, the bespectacled Baron Aloha. There's a new enemy in town, the rather twisted Captain Suzuki, a planet-sized egg-head whose love of collecting things has extended to his stealing the game's six worlds and trapping them inside giant bottles. By searching out and rescuing Baron Aloha's chums, the octopus-like MuuMuus, in each level, Robbit (the mechanic rabbit whom you control in the game) is able to wrest each world from Suzuki's clasp.

Each world has its own distinct theme, ranging from breezy seaside areas to grim industrial zones to brightly coloured fairground and circus levels. Their different flavours serve to give the game immense variety, and their increased complexity over those of the first game – the two *Doom*-style levels are more convoluted, for example, making them considerably more worthwhile experiences than before – demonstrates that *JF*s developers have taken some care in delivering a more interesting, involving experience.

As was the case with the first game, however, you get the impression developers, EXACT, began to run rather dry on ideas towards the game's final levels – they fail to delight in the fashion of the colour-swamped first world, for example, whose flying whales, giant turtles and self-reverential touches are quite exquisite.

Nevertheless, *Jumping Flash 2* is a supreme demonstration of Japanese quirkiness and unique characterisation, a game where you never know exactly what lies just around the corner – and it's a thrill discovering what that might be. The game's myriad enemies are as charming as they come, be they overweight, flightless birds that squeak when you pummel them with laser fire, or hamburgers

Level 3







Baron Aloha references pop up all over the place, including on the rear of this mine cart (above left). Level 3's boss (above right), like just about every one that appears in the game, offers little challenge








Level 4 sees action conducted against an industrial backdrop, including a massive oil rig (main). Elsewhere, hangar doors can be shot open to reveal a selection of power-ups and weapons (top right)

Enemies in the first game, MuuMuus now have to be rescued. There are four per level to seek out





Perhaps the most outright fun level, this one offers rollercoaster rides galore (left and centre). They can be used for quick and easy (but not necessarily safe) transport around the level – use them often

that attack by opening their buns to launch sliced-gherkin projectiles at you.

Unfortunately, as well as sharing the original's fine gameplay and strength of level design, *Jumping Flash 2* also bears its only significant flaw: it's a total walkover. Having experience of the first




The final world is themed around a house, and includes an oversized pop-up toaster (main)

game, **Edge** was able to finish the sequel at its first attempt, in a little over four hours. Those approaching the game having not seen the first instalment will certainly find it harder going as they'll have to learn its unique gameplay, but, either way, the overall lack of challenge is depressing considering just how well-implemented the game is in other regards. If EXACT had been a little more sparing in their littering the playing area with power-ups and special weapons - which must count as a pretty straightforward tweak - the game could have been taxing. As it is, nine times out of ten your demise will come about through careless jumping rather than having your energy bar depleted by damage, such is the game's generosity.

The seven boss characters (worlds one to five have one each, the final world has two) offer a pathetic amount of resistance, too, just to add insult to injury. They all look daunting enough, sure, but landing home a couple of special weapons while maintaining some nifty padwork ensures their demise in no time at all.

The inclusion of the first game on a separate CD in the *Jumping Flash 2* package - and the fact that, once finished, you can play it through again in a remixed fashion - goes some way to averting the disaster that it might have represented, but it remains, ultimately, a disappointing release.

Edge rating: **Seven out of ten**






Top to bottom: at ground level; one jump sends you skyward; another even further; the final to the apex

International Track & Field







International T&F **is Konami's 32bit attempt to recapture the intense playability of the 8bit coin-ops**

Format:	PlayStation
Publisher:	Konami
Developer:	In-house
Price:	£44.99
Release:	June 23

Special features include doves, a space shuttle, and a mole

Hardened veterans of the gaming scene, weaned on the joystick-breaking waggle fests of early eighties classics, *Track and Field* and *Hyper Sports*, have been anticipating Konami's return to the videogames stadium with great eagerness.

Built on the foundations of simple game design - the faster you waggle the joystick the faster your character runs, etc - the intense competition between arcade goers and home users (numerous 8bit computer versions were cloned from Konami's designs) ensured the *Track and Field* series would be firmly placed within videogaming's Hall of Fame.

Now, over a decade later, the introduction of 32bit technology has given the Japanese softco the opportunity to resurrect gameplay of old while cashing in on PlayStation owners' thirst for 3D action.

Utilising the PlayStation's polygon hardware, *International Track and Field* is full of more gloss than a Dulux showroom. Fully realised in 3D, the motion-captured animation will amaze and inspire - this is as close to taking part in the Olympic games as any Joe Public will ever get. Lycra-clad sprinters charge at the finish line, ducking at the last moment; pole vaulters contort their bodies into impossible positions as they struggle to reach greater heights; long jumpers slice through the air before plunging into the sand. Each event looks thoroughly stunning.

However, beneath the blemish-free, Adonis-like skin of *Track and Field*, the skeleton is somewhat imperfect, with fundamental flaws in game design injuring what could otherwise be nominated game of the year.

First, the visual style. Although the 32bit *Track and Field* is without doubt visually superior to its 1983 ancestor, there just seems to be something missing with this incarnation. With the realism of the modern game, the cutesy, comical graphics that endeared so many to the *T&F* formula has been lost. Gone are the moustached, gangly athletes of 1983, who so gracelessly bounded along the track. Instead, perfectly formed Arian powerhouses charge around without a chuckle in sight.

Second, the events themselves. While covering all the elements of track and field, the omission of the quirky eccentricities of events in *Hyper Sports* (such as the archery and skeet shooting) fails to charm the player in the same way as the 8bit





Note how the action is displayed on the stadium screen (left). The javelin is made harder by the camera, which pans with the athlete's approach





The field events require more timing than physical strength, meaning three failed attempts are common





After each event it is possible to watch a replay, with the panning camera adding much to the effect. When a world record is broken, it can be stored on memory card and the event replayed over and over



The rippling pool water looks great, but where's the 'breathe' bubble from the 8bit game? Hammer throwing is tough (right)

















Events, from top: One of the hurdles' flaws is evident when a fast player races a slow player – the camera can't fit both athletes on screen at once, causing timing difficulties (top). Once mastered, it is quite easy to break the high jump world record (middle). The pole vault is not so simple (above)

original. To prevent the game being completely staid, Konami have included some special features, such as the mole who occasionally pops up in the long jump sand pit, but essentially this is somehow less charismatic than its 2D ancestors.

Third, the game structure. With each event you are given three attempts to qualify (with some qualifying times/distances being so easy it's an insult). However, in real life the high jump rules allow for three attempts at just one height, not three attempts in total. So, rather than slowly creeping toward the world record, you have to increase the bar height by almost a metre at a time. Also, because the game allows for infinite continues, it's far too easy to simply repeat a failed event until you get it right, the only threat coming from the computer opponents, whose points total (the method by which the champion is determined) increases as you struggle to qualify.

Which leads to the third problem – the computer-controlled players. These athletes are so poor it feels like you're taking part in a village fete, not the quintessential athletics event that is the Olympics. Taking the 100 metres sprint as an example, a good player can finish this in around nine seconds (smashing the world record, incidentally). Your computer-controlled rivals, on the other hand, jog over the line in around 14 seconds, even when the difficulty setting is set on hard, meaning the so-called world-class athletes offer absolutely no challenge whatsoever.

Which means, realistically, *Track and Field* is a game for two or more players, and here is where it excels. In fact, *Track and Field* could almost be regarded as two games – a relatively easy oneplayer game, and a marvellous implementation of multiplayer gaming. Equipped with the ability to handle four players simultaneously, the ultra-competitive rivalry existent in the original games has, thankfully, been passed down the family tree. Meaning the only point of contention between players is the method adopted to run faster, be it hammering the joypad or frantically sliding a cloth-covered finger from one button to the other, as if you were desperately polishing the joypad's plastic casing. Some will argue this button hammering ruins the whole feel of the original waggle-crazed arm wrecker, responsible for many a destroyed Quickshot joystick – it seems Konami's forthcoming dedicated 'waggler' joypad will be an essential purchase.

Despite its flaws, *International Track and Field* is still a hugely enjoyable and addictive game. The ability to store records on memory card will increase the longevity of the events, as will the hope of finding special features. But the game's design problems hold it back from being an absolutely crucial PlayStation release. Instead, it's a great game to take Sony's console away from a oneplayer environment and into a social atmosphere.

Komami's superb motion capture techniques are effective in all events, especially the long jump. From the sprinting approach, the athlete runs through the air before crashing into the sand

Edge *rating:* ***Eight*** *out of ten*

Bust a Move 2

Format:	PlayStation
Publisher:	Taito
Developer:	In-house
Price:	£44.99
Release:	Out now (Japan)





What elevates *Bust a Move 2* beyond the repetitive tedium of most puzzle games is, naturally, the twoplayer option. The fast pace, the panic, the verbal abuse thrown from the opposition – it's perfect





The oneplayer game, while lacking the advantages of human-based combat, is still a compelling option

In the Hollywood-obsessed world of interactive entertainment, it's ironic that it usually takes a plumber, a hedgehog, or some other similarly goofy character to make games players sit up and remember what videogaming is all about - perfectly-tuned gameplay coupled with adorable characterisation.

In this case, the cute, buck-toothed dinosaurs from *Bubble Bobble*, with high-pitched squeals and a tendency to cry when things don't go their way, will guide you through level after level of infuriating, frantic, desperate, wonderful fun.

Following traditional puzzle games such as *Tetris* or *Puyo Puyo*, *Bust a Move*'s gameplan is devilishly simple. At the top of the screen sits a pile of coloured balls. By firing similar balls at different angles, you can add to specific areas of the heap. When three or more balls of the same colour touch, they explode, causing any spare balls, no longer attached to the main pack, to fall away, too. Once the screen is clear, it's onto the next level.

The game sounds almost pathetic, but in fact it is frighteningly addictive. You will dream about this game. You will watch snooker and imagine the coloured balls popping as they touch. You will delight at the ridiculously cute characters, who have more charisma in just two frames of animation than any FMV CD-ROM could muster in over 600 Mbs of calculated footage. The oneplayer option, by far the most limited, still provides heart thumping suspense as the bubbles gather before you, blocking the one ball you need to pop.





Playing against the computer is a rewarding experience, with opponents' intelligence and dexterity increasing to near ridiculous levels

Enter player versus computer mode, and things really get tense. You face a series of increasingly cute adversaries, each one as devious as it is loveable. When you destroy more than three bubbles, the excess appears on your opponent's pile, and vice versa - it's as brilliant as it is simple.

By far the most entertaining, however, is the twoplayer option. Although the same rules apply, *Bust a Move 2* works best when you are crippling a friend's strategy with an onslaught of coloured balls. Anguish, fear, high blood pressure and elation all play a part in this incredible twoplayer game. Cynics may say this option only really works due to the competitiveness found in an office environment, but nevertheless *Bust a Move* offers enough gameplay in the oneplayer game for home users to be satisfied; with the twoplayer option available for drunken mayhem after the pub.

The graphics are sickly sweet, you'll hum the ditties on the bus home, and the gameplay is perfection. This is a game that reeks of Japanese design. Sure, there's little here that gives off the sweet smell of 32bit, but with gameplay like this, who needs 120,000 polygons?

Edge rating: **Eight out of ten**







The character design manages to convey emotion and comedy, without a single digitised image in sight. In oneplayer mode the levels are stacked in a pyramidal manner (right)

Vampire The Night Warriors







Standard *Street Fighter* moves, such as dragon punches and fireballs, all reap rewards in *Vampire* and are easy enough to pull off using a standard PlayStation pad, but special attacks that require all punch or kick buttons to be held simultaneously would benefit from a proper six-button layout

To Capcom it must have seemed like the perfect setup. Splitting the home conversions of its popular horror-comic fighter, *Vampire - The Night Warriors* (*Darkstalkers* in the West) and its sequel, *Vampire Hunter - Darkstalker's Revenge* between the PlayStation and Saturn. But in getting the original game, now two years old, are Sony owners missing out on the latter's gameplay refinements? As well as the sequel's obvious advantages of two new characters and playable bosses?

Although in the light of Capcom's recent onslaught of similarly-styled 2D fighters (*X-Men* and *Marvel Super Heroes*) it might not seem like it, *Vampire*'s post-*Super Street Fighter II* appearance did actually bring some new ideas to the genre. Mid-air blocking, priority missile attacks and the now obligatory special moves meter all combined with new stylised artwork to create an instant hit. Although *Vampire* carried over many of *SSFII*'s moves, making it easy to immediately pick up the gameplay, the larger-than-life cast of famous monsters allowed for a greater reliance on magic and bizarre comic attacks, making *Street Fighter* look positively pedestrian.

The term 'arcade perfect' is often abused when it comes to home conversions and this effort is no exception. Die-hard fans will notice a lack of frames on some characters' animation and some distinct slowdown when the larger sprites perform complex special moves. There could also have been better memory management as far as CD access is concerned. In oneplayer mode, waiting for the congratulatory message and then the character select screen to load, only to pick the same fight and wait for that to be loaded in again, can quickly get irritating.

Thankfully, though, the feel of the gameplay is still intact. Even using the PlayStation's less-than-ideal joypad and having to assign moves to the shoulder buttons, the usual array of fireballs and dragon punches are easily generated. Appearing in the wake of *Street Fighter Alpha*, *Vampire* will have to rely on fans of the series rather than those wanting the best 2D fighter available. The only complaint those PlayStation-owning fans can really make is why wasn't it them who got *Darkstalker's Revenge*?

Format:	PlayStation
Publisher:	Capcom
Developer:	In-house
Price:	¥5,800 (£40)
Release:	Out now (Japan)





While there are still plenty of visually impressive moves and finishes, *Vampire* lacks the sequels outrageous specials, indicated by its 'EX' and 'ES' bars at the bottom of the screen



***Edge* rating:** ***Seven* out of ten**

The Settlers 2

Format:	PC
Publisher:	Blue Byte
Developer:	In-house
Price:	£45
Release:	Out now





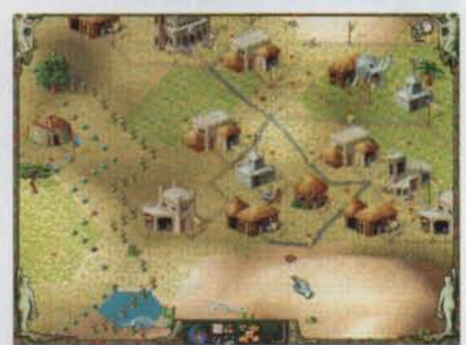


One of *Settlers'* improvements over the original game is the inclusion of these observation windows

Theme Park must surely rate as one of the surprise success ports from the PC to console. Retrospectively, however, it's easy to see that it was the strong characterisation and humour that disguised the underlying statistics and made it so appealing to the generally younger audience. *The Settlers II* could theoretically achieve a similar level of success on console, although the lack of EA's backing means it is unlikely to do so in practice.

The Settlers II's strength stems from its attention to detail. Every character has a wide variety of humorous, simple, passing-the-time actions such as skipping and running on the spot, in addition to well-animated everyday tasks like fishing and chopping trees. It's a small point, but immediately communicates the effort that has been lavished on the entire game. Every object





Mines, quarries, water and forests are the four essential ingredients of a healthy civilisation (left). Because of the nature of the gameplay, it is quicker to develop cities and connecting roads upwards

appears in SVGA and produces arguably the prettiest, certainly the cutest, PC game ever.

Once you have been playing the game for a while it becomes apparent that the gameplay has received as much attention as the glossy graphics.



To advance your borders, build barracks and defeat the neighbouring enemy knights in battle (above). The hi-res scenery is sumptuous (inset)

The main game is a 15-level campaign in which you have to explore different islands, annihilate the enemy and capture a jump gate that grants you access to the next level. Although the difficulty is well balanced, with each level containing more enemies of a higher intelligence, the story tying them all up is not as developed as that of titles such as *Warcraft II*. The process by which you achieve this is much the same as in the original game. Starting with a single castle you have to construct a well-balanced empire containing farms, mines, quarries and mints to finance your war effort and drive expansion. It's the superb balance of this aspect of the game, with one factor affecting others perfectly as with *Civilization*, that makes the entire game so addictive and enjoyable.

The first game featured the ability to generate random scenery but regrettably this has been removed from the sequel. The rest of the game has been improved markedly, with the inclusion of many new civilian buildings, such as donkey breeders to aid transportation and military structures like catapults, which provide a potent attacking force. Combined, they are enough to make the game sufficiently different from the original. However, the critical step that Blue Byte has failed to take with this sequel is modifying the transport system. Because the entrance to every building faces the bottom of the screen it is necessary to build a road from above to bring it into play. The upshot is that you naturally develop your structures up the screen to avoid these delays - a fact that quite quickly becomes aggravating.

This inherent weakness surprisingly fails to dent the overall enjoyment of the game. As sequels go it doesn't offer vast changes beyond the original but in terms of tweaking an already excellent title it works splendidly.

Edge rating: **Eight out of ten**

Focusing on the dynamic and far-reaching world of multimedia, Edge examines some of its many and varied components

nuMedia

Edge once again presents an independently selected assortment of multimedia products, ranging this month from spectacularly mediocre CD-ROMs, through hi-tech video projectors, to superlative Japanese animation – an artform slowly increasing its influence over the world of videogaming. Also featured: *Tekken* music, the art of MC Escher and the unlikely lives of Microsoft employees.

books

Microserfs

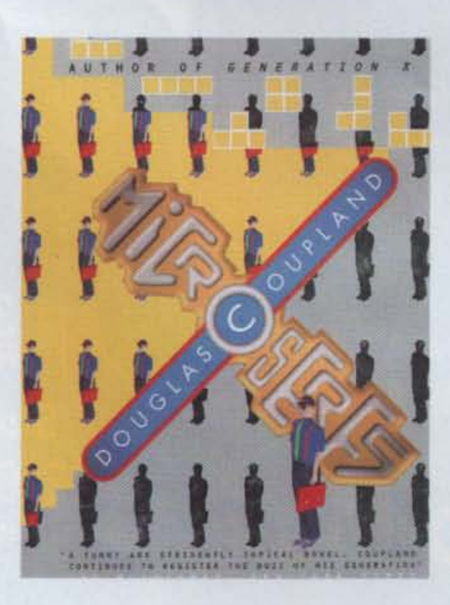
- Douglas Coupland
- £9.99
- Flamingo
- ISBN 00-00-225311-9

Douglas Coupland, who so famously captured the sated emptiness of our age in his novel *Generation X* now turns his laser gaze on the Gap-clad, twentysomething techies of Silicon Valley.

Dan, the narrator, and one of the eponymous Microserfs, begins his tale on the astro-turfed Microsoft Campus where he beavers away under the omniscient gaze of the mighty 'Bill'. Feeling increasingly stultified by a corporate monolith so regimented and impersonal that the cars in the parking lot seem 'clicked into place with a mouse', Dan defects with his housemates to go it alone and risk all on a funky little multimedia title called *Oops!*

Failure would be death but success would mean the coders grail, the ultimate accolade of digital creativity, the difference between Microserfs and Cyberlords: a version 'One-Point-Oh'.

Coupland's novel is as good an evocation of a programmer's life in the USA as you could wish for. It's extremely witty ('Philips CD-i is like trying to read a coffee table book with all the pages stuck together'), uncommonly astute ('geek implies hireability, whereas nerd doesn't necessarily mean your skills are 100% saleable') and surprisingly moving.



All these bulging IQs working 'til their eyes burn, feeding off junk food, 'alive but not living', all in the service of a techno dream that alienates as much as it inspires. Buy it.

Street Fighter II
The Animated Movie

- Takayuki Sakai
- £9.99
- Manga Books
- 1-900097-11-7

When a graphic novel contains the words, 'Even you cannot withstand my psycho power,' you know it is not aimed at manga's more mature fans.

Street Fighter the comic book, based vaguely around *SFII: The Animated Movie*, is a jumble of visual styles and clichés which never really gels as a story.

I'M COMING!

The main plot is simple. M Bison and his crime syndicate cronies are kidnapping and brain washing top street fighters so that the hapless warriors can be used as unquestioning assassins. To get hold of the ultimate fighter, Ryu, Bison kidnaps and brain washes Ken, Ryu's best friend. The finale sees the two pals fighting atop Mount Soryu with Ryu pleading melodramatically, 'Ken, don't you... remember me?' Of course he does, and in

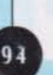


the end the two of them set on Bison for even more fisticuffs.

If the book had been honed solely around this plot, it may have worked, but the author tries to implement too many classic *SF* characters and conflicts into a limited space. Cammy, Dhalsim and Fei all turn up in pointless, space-wasting cameos, and you can't help but feel Chun Li, although slightly more instrumental to the plot, has been included merely to perform the obligatory gratuitous shower scene.

Like the story, the artwork is patchy, but adequate – although it looks like the book was coloured in half an hour. The brash, simplistic images would have been more striking in black-and-white.

In short, this is a book for children obsessed with the Street Fighter mythology, who aren't bothered by the lack of a coherent narrative structure. A weightier study of these interesting characters, presented in black-and-white, would be much more welcome.



Film

Ghost in the Shell

- Manga video (79 mins)
- Directed by Mamoru Oshi
- £13.99 (Cert 15)

The future, according to *Ghost in the Shell*, is grim. Mankind no longer has faith in nature and has taken to adding cybernetic implants to the body and augmentations to the brain – both to improve performance. Consequently everyone is able to connect their brains directly to the Net, and hackers can



interface with people's minds. The 'ghost' of the title is the soul – the last spark of humanity which exists in each cybernetic body.

The story concerns a superhacker known as the Puppet Master who hacks into the brains of government agents and bends them to his will. An internal bureau of investigations is pulled in to catch him, but they discover the Puppet Master is actually a kind of computer virus, created by the foreign affair ministry. The idea was to feed the virus into visiting diplomats and therefore control them, and through them the countries they represent.

Like Bladerunner, with its brooding replicants, *Ghost in the Shell* is, in part, a meditation on what it means to be human. Kusanagi, the cyborg-cop hero, has had so many implants she is no longer sure what parts of her mind are real and what parts are computer. Much of the film concentrates on her quest for self-identity, on her need to understand what separates her from the Puppet Master, an artificial intelligence which contains no human soul (or ghost) but is still capable of self-awareness.

This is a complex, wordy tale, well written and beautifully animated. Anyone looking for a fix of anime violence should look elsewhere. *Ghost in the Shell* is a philosophical masterpiece.

GunSmith Cats

- AD Vision (70 mins)
- Directed by Takeshi Mori
- £12.99 (Cert 15)

It's hard to find a starker contrast to the grim themes of *Ghost in the Shell* than the guns and girls fest of *GunSmith Cats*.

Set in a fictional seventies Chicago, *GunSmith* is the implausible tale of two



teenage female gun shop owners, Rally and May, who do a little bounty hunting on the side. In this volume, the two are roped in by the Bureau of Alcohol, Tobacco and Firearms to help break a gun-smuggling ring, and the resultant shootout in a warehouse packed with explosives is a brilliantly choreographed finale.

Although the story itself is fast-paced, amusing and beautifully drawn, what really makes this anime work is its extraordinarily well-researched, seventies US cop show design. The gaudy opening credits, the tacky jazz soundtrack, the Bullitt-style sports cars – each element of the story is carefully constructed to make *GunSmith Cats* look, sound and feel like Starsky and Hutch, directed by John Woo.

Gunsmith Cats, although a little short, is a marvellous introduction to anime for those who can't stomach Akira-style apocalyptic futures. It even comes with a 'making of' documentary which is interesting if only for the bit where the *GunSmith* artists travel to Chicago and see their first real gun. Bless 'em.

CD-ROM

Bishojo Manga

- Out now, £19.95
- PC or Mac (dual format CD)

Bishojo is Japanese for 'sexy girls' so it probably will not come as much of a surprise to learn that this is a collection of around 100 pictures of manga-style women in various states of undress.

Actually, 'women' is the wrong word, considering the standard dewy-eyed manga female looks about 12. Consequently, it's a bit strange (right-wing guardians of taste might substitute 'strange' for 'morally questionable' here) to see them frolicking au naturel. To be honest, even the most broad-minded viewer is bound to spot a hint of paedophilia about this disc, and perhaps about





some aspects of the genre it purports to represent. *Bishojo Manga* looks like the work of men who don't really meet women that much and have therefore idealised them as nubile, manageable children – Japan is a truly alien culture.

The *Bishojo Manga* 'gallery' is often beautifully drawn, more often blatantly misogynous, but, in the end, fascinating. £19.99, though? You can get plenty of this on the Internet for free. Apparently.



Continued next page

Continued

Escher Interactive

- Thames and Hudson Digital
- Eye Interactive
- PC CD-ROM
- Out now, £49.95

Anyone unfortunate enough to have seen Janet Street-Porter's ill-informed tirade against the Internet a few months ago on Without Walls will have witnessed her attack on digital art. Her argument was that works of art should not be represented on the computer screen because there they cannot evoke the same intense feelings as they do when viewed in reality.

Of course, what she seems to have overlooked is that anyone wanting to see the life's work of Escher, for example, would have to travel to art galleries all over the world. In fact, much of his work is unavailable for public viewing – explaining why *Escher Interactive* is a good idea.

MC Escher, as anyone with a GCSE in art (or maths, probably) will tell you, was a Dutch artist famous for his drawings of interlocking patterns and mathematically impossible buildings and structures. *Escher Interactive* includes all of the artist's graphical work, which can be viewed either chronologically, randomly (by clicking anywhere on the dateline at the base of the screen) or selectively (via the program's exhaustive find function). The latter, definitely the best of the three, allows the user to enter a name, theme or object and will then search for pictures which correspond to the search command.

For those who want to learn as well as look, each picture is accompanied by a short biography and many come with audio commentary and film clips showing Escher at work. There's also a complete Escher biography, again including film clips and commentary by his son.

Also included are some fun, if slightly unnecessary, Escher-inspired games. The best is *Tessellation Workshop*, where you get to design your own interlocking patterns. Also available are *Convex and Concave* and *Impossible Puzzles*, both mind-teasers based around Escher's implausible architectural works. Success in either relies on your ability to perceive and manipulate optical illusions, and the effect of playing for some time is rather similar to drinking a bottle of tequila – you come away with a headache and a temporary inability to function in a universe where the laws of perspective apply.



Escher Interactive is well presented, thoughtfully put together and will definitely appeal to those with a casual interest in the artist's amazing work (if they're not put off by the rather extortionate £49.95 price tag). Students of Escher may perhaps be a little disappointed by the lack of depth offered in both the biography and the text which accompanies each picture, but, if used as a starting point for study, or a pictorial resource, *Escher Interactive* will probably prove invaluable.

The Muppet CD-ROM

- Ocean
- PC CD-ROM
- Out now, £39.99

Developers Starwave have already offered the *Clint Eastwood* and *Sting* CD-ROMs: just as you'd expect, their latest effort is well-presented, impressively styled, full of multimedia clips and even blessed with a few original ideas. By the same token, however, it's also short-lived, increasingly dull and, ultimately, a bit pointless.

Things get off to a fine start, though, with a twisted version of the familiar Muppet theme song ('It's time to boot the disk up, it's time to turn stuff on, it's time to meet the Muppets, on the Muppets' CD-ROM') giving way to a lengthy and innovative video introduction.

The Muppets pry open your *Windows* desktop, reel off some (admittedly very poor) computer-related jokes in a neat vertical video window, wreak a bit more havoc then drag you 'inside' your computer on a quest to locate a selection of 'lost' Muppet characters.



The next two hours or so, as you discover the seven games on offer and the video entertainment which rewards your progress, are reasonably enjoyable. There's an amusing quiz, a challenging video-cube puzzle, and a superb version of *Missile Command* with Fozzie Bear assailed by custard pies and fruit.

But you'll quickly exhaust the limited appeal of these novelties, and will certainly baulk at having to play them repeatedly to continue through the game. There are a few more surprises, but they're nowhere near enough to keep you interested. This limited entertainment value is par for the multimedia course these days, of course, but it's still disappointing.

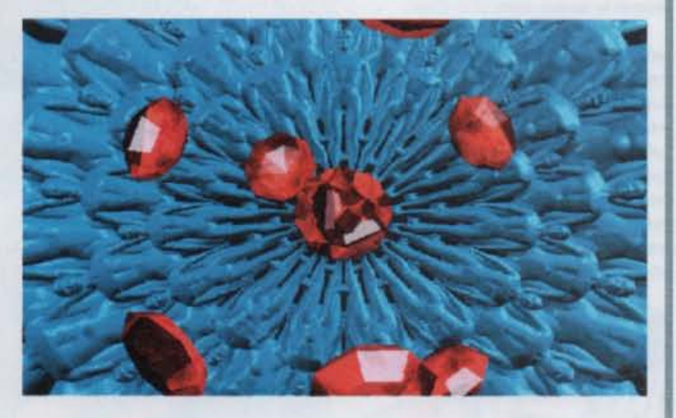
Organic Art

- Time Warner
- PC (*Windows 3.1, 95, NT*)
- Out now, £29.99

Organic Art is the distillation of ten years' worth of pioneering work by peerless computer artist, **William Latham**. Describing it as a PC screensaver is like describing a Lamborghini as a motor vehicle. Firstly, it has countless examples of Latham's computer artworks, which are eerie, beautiful, calming creations with a breathtaking organic quality belying their computer-generated nature. Some things are recognisable: beautifully rendered jewels which float around the screen, or rubbery skulls, for example. But many of the scenes are abstract creations, reminiscent of primitive undersea creatures and even sperm. And there's a soothing ambient soundtrack to go with them.



But above all, you get the chance to employ Latham's mutation techniques, which exactly mimic those of the natural world, on the predesigned forms and backdrops. So, you can take a Latham original and turn it into something entirely new and unique. As a screensaver, *Organic Art* is unsurpassable – it's the first commercially available digitised work of art, and it renders canvas and paint redundant. No self-respecting *Windows* desktop should be seen without it.



Sade Interactive

- OmniMedia
- PC CD-ROM, CD-i
- Out now, £24.99



Although largely neglected in England of late, Sade is one of the most successful soul bands of the last decade, and its singer, **Sade Adu**, one of the more stylish and alluring performers of the eighties.

Unsurprisingly, then, *Sade Interactive* is a beautifully presented product with attractive menu screens and hundreds of photos employed throughout. The biography, tour history and discography sections are all exceptionally well arranged, coming in helpful year-by-year nuggets which can be accessed randomly by a click of the mouse. There's also a video jukebox containing nine of the band's biggest hits.

Like the group itself, however, it's all surface gloss and little real depth. The biography and tour sections, although reasonably comprehensive, are rather fawning and sycophantic, choosing to gloss over some of Adu's more interesting breakdowns. Furthermore, there is a karaoke section which only features one song - a last ditch attempt to justify the 'Interactive' label, perhaps.

Admittedly, the automatic link up to the Sade Web site is a neat idea, but it's also a particularly lonely innovation - the disc can be sped through easily in an hour. Not good enough for a £24.99 price tag.

Lovers of Sade's mid-eighties dinner party soul will probably find some of this interesting, but anyone else who is curious about the band would probably be better off buying the greatest hits album.





music

Nearly God

Nearly God

Island records

Tricky (aka Nearly God) labels this album as a collection of 'brilliant demos' rather than a legitimate follow up to last year's lauded *Maxinquaye*. A wise decision.

The problem with *Nearly God* is that Tricky's propensity for self-indulgence, just about controlled in *Maxinquaye*, is allowed to run riot here. The result is, at times, a lumbering, insipid collection of poor Massive Attack cast-offs. At others, the dark brilliance of *Maxinquaye* is evident.

Collaborations with Terry Hall and Alison Moyet bring variety to the vocal work, but Björk is wasted - as **Edge** suspects Tricky was when he wrote most of this.

Tekken

Various

JVC

The *Tekken Windemere Mixes* were chided in E33 for sounding nothing like the original in-game tunes. Now, as if to redress the balance, JVC has released an album which includes all the original game music, as well as the jungle-esque mixes.

It is difficult to imagine why anybody would want to listen to the 20 or so tunes if not playing the game. Each is a piece of Japanese synth muzak, sometimes conveying atmosphere and menace: but separated from the game they are just bearable.

Good game music is like good film music - a marvellous accompaniment which should not be taken out of context.

Textures

Various

Volume

For the last three years the Trance Europe Express compilations have attempted to bring together an incredibly diverse range of artists and musical styles under the general trance monicker.

In the two CD album, *Textures*, DJs **Darren Emerson** (Underworld) and **Alex Paterson** (The Orb) have taken a CD, picked their favourites from the last four compilations and mixed them together in a seamless stream of ambience.

Emerson's disc contains the odd danceable track whereas Paterson's, characteristically, remains in a coma for 70 minutes. One to put on at three in the morning in a darkened room.

Sleeper

The 'it' Girl

Indolent records

Abhorred by the music press, Sleeper have nevertheless built up a sizeable following since their debut album, *Smart*, jumped on the Britpop express last year.

The 'it' Girl is more of the same jangly indie pop, but this time with better lyrics, even catchier choruses and the band's best single ever - 'Sale of the Century': a simultaneously bitter and wide-eyed paean to teenage love, delivered in **Louise Wener**'s characteristic breathless drawl.

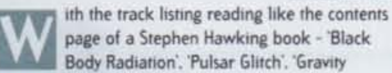


'Lie detector' and 'Good Luck Mr. Gorsky' provide the other standout tracks, but they don't stand out too far - the rest of the album is close behind. One of Britpop's brighter moments.

Total Eclipse

Violent Relaxation

Blue Room Released



With the track listing reading like the contents page of a Stephen Hawking book - 'Black Body Radiation', 'Pulsar Glitch', 'Gravity Mirage' - it is clear that Total Eclipse have been heavily influenced by the sci-fi/cosmology themes which have infused dance music since The Orb released *Blue Room* four years ago.



The oxymoronic title sums up the content well. Although likely to be pigeon-holed as trance, *Violent Relaxation* also takes long journeys into sinister techno, proto house and dub ambience, making it a convenient guide to the state of British dance music today. It would also make a great game soundtrack.

Orbital

In Sides

Butterfly recordings

In Sides is a welcome return to form for Orbital after last year's messy *Snivilisation*. On initial listening, **Edge** was disappointed - its lush layers, delicate melodies and precise percussion failed to sink in. But after about five listenings, it crystallised, the album ranging from summery, shimmering tracks to dark and technoey offerings.



In Sides does often sound like a film soundtrack - indeed, the band's **Paul Hartnoll** has ambitions in that area. But if only all film music was like this: if you play *In Sides* to your granny enough times, you'll eventually catch her whistling it.

Continued next page

gadgets and gear

Casio QV-10

The ultra-compact *Casio QV-10* basically acts like a standard camera – you point it at what you want to photograph and press the button. However, instead of storing the resultant picture on to film, the *QV-10* saves it as JPEG digital image. Due to the machine's 16Mb of RAM it can store an impressive 96 of these 24bit, 16.7-million-colour images in memory.

The camera will probably be of most use as a quick image-capture device for computer users. By employing the connection kit provided, the *QV-10* can be connected to a PC or Mac and the images downloaded as TIFF, BMP or PICT files.

Once on the PC, *QV-10* images can be used like any other TIFF or PICT file – they can be used with desktop publishing software such as *Quark XPress*, or placed on Web pages – cutting out the need to laboriously scan each photograph.

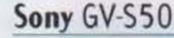
To make things even easier, *QV-10* boasts a built-in LCD display which lets you view pictures as soon as you take them. The lens is also rotatable through 270 degrees so pictures can be taken from a variety of angles while still being monitored on the LCD screen. The device can even be hooked up to your TV via a video composite socket.

The *QV-10* looks like becoming an indispensable device for getting pictures onto PCs and/or up on the Internet quickly and efficiently. Furthermore, with a new, cheaper *QV-10A* released a few weeks ago, the system is also affordable. As for wider or more sophisticated use, some observers have pointed out that the images are rather grainy. Until this is sorted out, Fuji et al can breath a collective sigh of relief.



Casio QV-10A • £399 +VAT • tel 0181 450 9131

Sony GV-S50



If you've travelled business class on a major airline recently, the chances are you will have been offered one of these on which to watch a feature film.

The *Sony GV-S50* is a video walkman which accepts Hi-8 tapes, the type used in many handheld camcorders. The device has a four-inch colour LCD screen which, surprisingly, provides a reasonably sharp image – at least from head on (anyone trying to watch from the periphery gets a much darker display). It comes with hi-fi stereo, AV input and output, and it's also possible to attach a tuner and aerial so that you can watch the TV, too.

Sony GV-S50 • $1,199.00 • **Sony** Customer info line, tel 0181 784 1144

Sharp XV range of video projectors

Home cinema has become a popular concept over the past few years, with increasing numbers of film fans investing in implausibly expensive wide-screen TVs and surround-sound speakers – all in order to capture that elusive feeling of going to the cinema... without actually going.

Now Sharp has broadened the market with its new range of video projectors which accept inputs from ordinary VCRs, and then project them onto screens up to 200 inches wide. The centre piece of each model is its 9cm single LCD panel through which video images are projected. Furthermore, in the case of the *XV320P*, the LCD screen has 100,386 pixels and the resultant image has a horizontal resolution of 320 lines (350 if viewing an NTSC signal).

All the projectors are compatible with both NTSC and PAL players, and come equipped with a built-in amplifier and speaker. The top of the range *XG3850* can even be hooked up to a PC or Mac for multimedia presentations.

Although the *XV370* projector has recently been awarded glowing reviews for picture quality, Sharp seems to be overlooking one key element of the cinema experience: how can it emulate that annoying thick man who always sits behind you and talks all the way through the film?



Video projectors range from £1,399.99 to £2,699.99 • For more info ring 0345 125387

competition

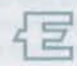
Win a Victory 3D graphics board

3D accelerator technology is about to become a vitally important part of gaming on the PC. Most major software developers are supporting at least one of the forthcoming chips and dozens of graphics companies have signed up to develop cards based around them. German electronics company Elsa has bravely chosen to lead the inevitable market onslaught with its recently announced *Victory 3D* card, incorporating S3's ViRGE controller. ViRGE, one of the more promising 3D chips to be revealed at the end of last year, can manage 3D operations such as bilinear filtering, alpha blending, fogging and z-buffering and is fully compatible with *Windows* utilities.

Edge, in conjunction with Force 2 (Elsa's UK distributor), has one Victory Board and three compatible games to give away to the person who can answer the following question correctly:

Q The Victory card can cope with MPEG full-screen video playback. **What does MPEG stand for?**

Send the answer on a postcard or envelope to **'Victory Competition', Edge Magazine, 30 Monmouth Street, Bath, Avon BA1 2BW.** Competition closes July 12, 1996

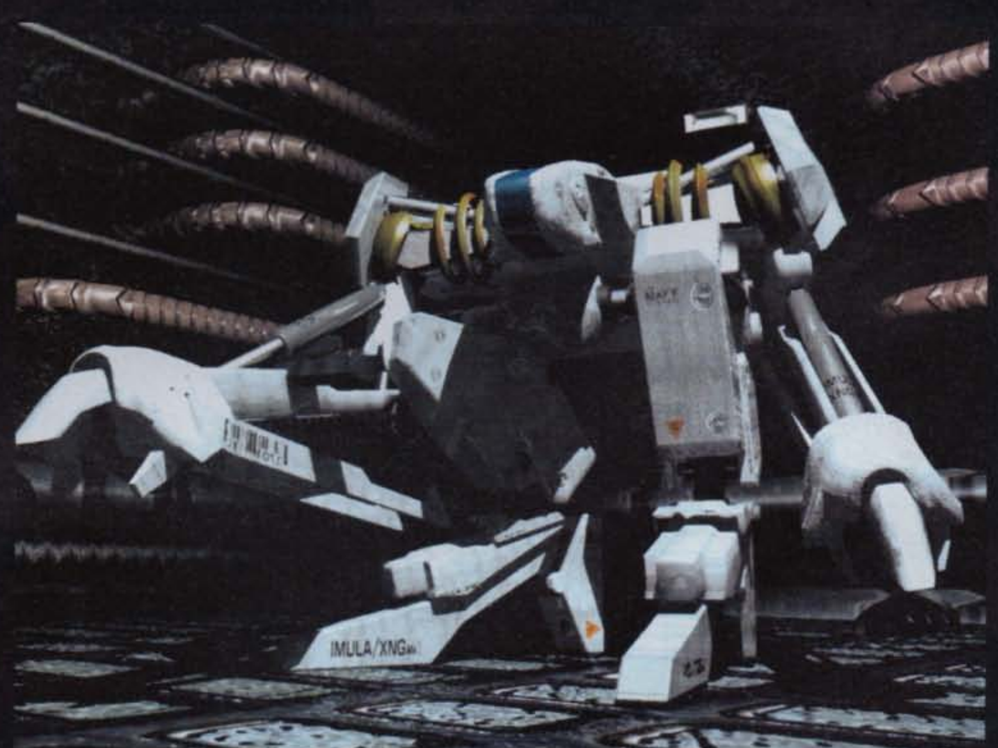


Note to those sending multiple entries: **Edge** bins them

Victory 3-D graphics board • £299(2Mb), £379 (4Mb)



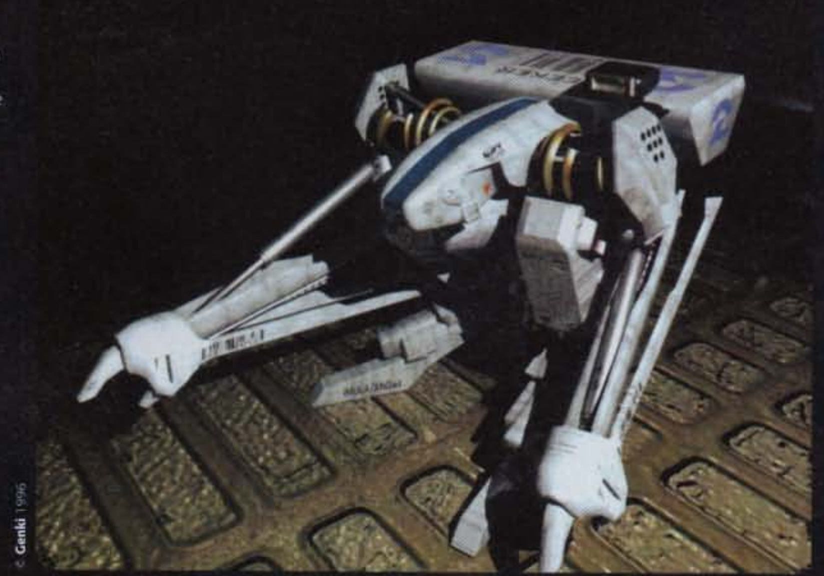
Edge explores the world of computer-generated imagery, showcasing the work of leading graphic artists and talking to the talented few behind the world's most aesthetic interactive entertainment



Among the PlayStation's first batch of games was a title that, despite failing to deliver the goods in gameplay terms, had one of the most striking, atmospheric intro sequences to ever come out of Japan.

Showcasing that most popular Nipponese videogaming component, the robot-like assault vehicle, *Kileak The Blood* set a visual standard in its CGI sequences that its pseudo-sequel, *Beltlogger 9*, looks set to surpass.

The artists at developers Genki have endowed the star of *Beltlogger* with a classic hi-tech sheen, and underscored its fine lines with a composure that shouts power.







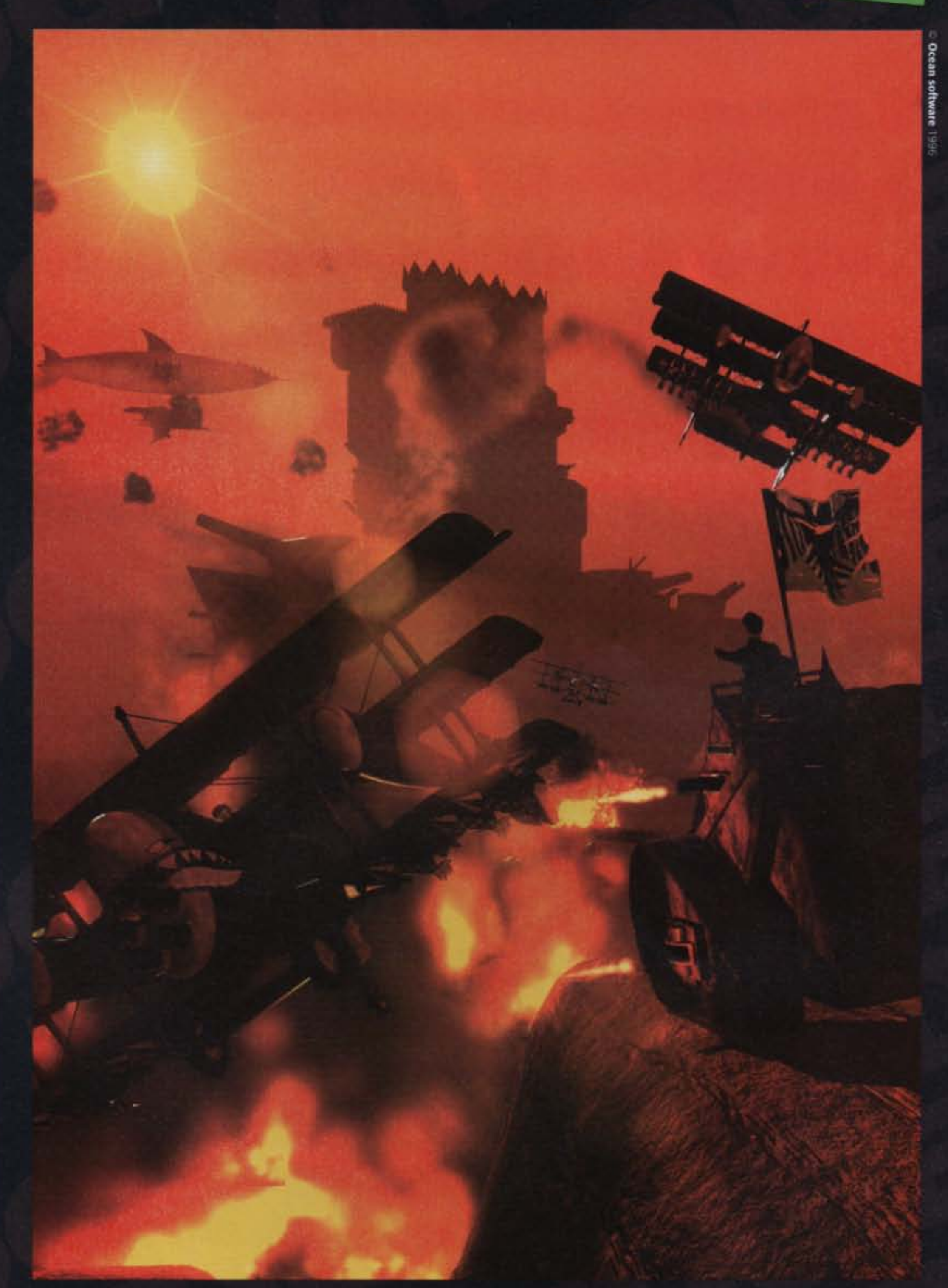


Loaded was famous for its strong, brilliantly designed 2000AD style characters, most of whom are being exhumed for *Reloaded*. This picture of Mamma (above right), caught in a rare violence free moment, took ten days to model and contains 100,000 polygons.

Deep aquamarine lighting gives the prerendered scene from *Realms of the Haunting* (right) an eerie and atmospheric luminosity. The scene uses 12 lights – two spots, two omni and eight light cones – as well as a fog effect, all given a green tint.

Reloaded pic created by Gremlin artist **Matt Furniss** using *3D studio R4* with *Mesh Paint*, *Metaballs* and *Bones* plug-ins.
The room (right) is a 3D map from the *ROTH* editor constructed by **Keith Donald**. It was then brought into *3D Studio* for rendering. The characters are modelled in *3D Studio* by '**Berni**'.





The late 19th and early 20th century eras may not be the most obvious places to look for inspiring video game scenarios, but Ocean have done just that.

Hence this rendered scene from *Dreadnought* (previously known as *HMS Carnage*), which seeks to take the Victorians and plop them into a flight sim adventure on Mars, is full of beautifully designed tri-planes, zeppelins and strange old fashioned tanks, placed against a deep Martian sunset. Peripheral effects such as smoke and lens flare give the scene a touch of reality which contrasts well with the total absurdity of the concept.

Created by '**Jolly**' from Ocean software, using *PowerAnimator* on SGI



The influence of Japanese designers in western conceptualisation has grown in recent years, with companies such as Big West (creators of the seminal Macross anime series) seeing their work stolen, stripped-down and reconstructed by myriad outfits, including the likes of American strategy/board game specialists, FASA, whose popular *Mechwarrior* games are epitomical examples of the west cribbing from the east.

Psygnosis' **Jim Bowers** took a similar approach when creating the imagery for *Krazy Ivan* (above). All too aware of the artificial look that has swamped CGI throughout its development, Bowers takes considerable effort to make his characters appear realistically battle-worn. The striking result is further proof that some Brit CGI artists are up there with their fellow pixelsmiths from across the globe.

Created by **Jim Bowers** on SGI using *Softimage*



EO, Japanese developer Warp's forthcoming follow-up to *D*, is a CGI tour de force, its entirety consisting of visuals generated on Silicon Graphics equipment.

While its central character lacks fine detail in her appearance, scenes such as the above demonstrate the atmosphere created in the environments that surround her by considered employment of subtle (and not so subtle) lighting effects.

Created by **Sho Tateishi** (CGI director), **Fumito Ueda**, **Hirohiko Sugamura** (CGI animators), **Hiromi Hayashi** and **Tomohiro Miyazaki** (modelling/texturing) on SGI using *PowerAnimator*



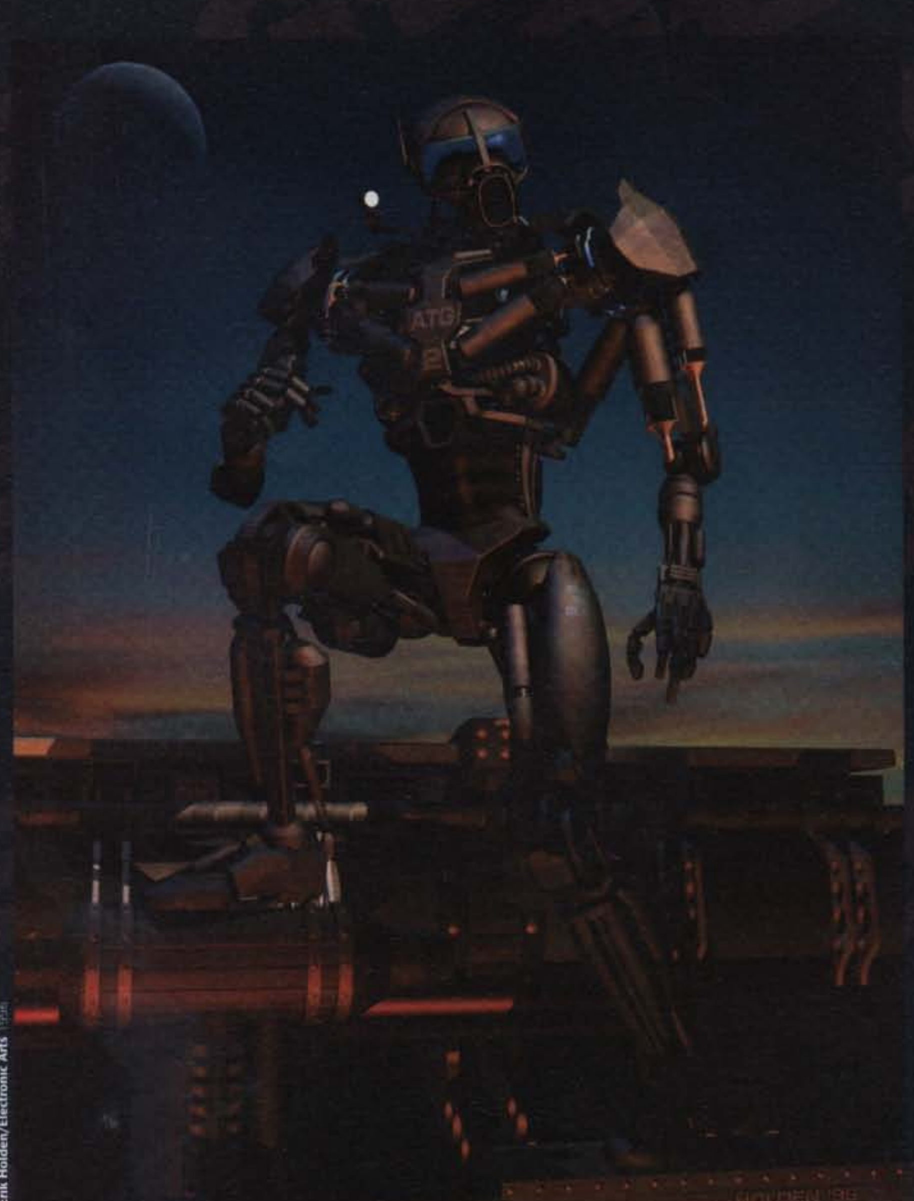


Adeline's seminal arcade adventure, *LBA*, was renowned not only for its instantly appealing gameplay but also for its stunning use of isometric 3D graphics. The sequel, predictably titled *LBA2*, looks set to impress even further, with fully rendered outdoor landscapes created from thousands of polygons. If the above shots are anything to go by, the prerendered footage should be even more striking. The incredible richness of colours, especially prevalent in the skyline and turquoise ocean, coupled with the exquisite use of lighting, indicate Adeline's mastery of *SoftImage*. Hopefully the gameplay will be lavished with such attention.

Created by **Frederic Tacqueit** of Adeline software on SGI using *Softimage*

Erik Holden

Edge showcases the work of Electronic Arts' Erik Holden, a graphic artist and game designer whose work is making waves in the world of 3D



Erik Holden has built this intricate droid model with the intention of creating, 'a general mechanical analogue to the human form'. In other words a droid which uses pistons, gears and motors in place of muscles, tendons and ligaments, to mimic the movement and anatomical structure of the human body. **Edge** talked to Holden about the lengthy creative process behind the work.

Edge What was your inspiration for the model?
EH To tell you the truth, it's all out of my own head. One naturally makes a connection to the Terminator endoskeleton, which, of course, was a terrific inspiration to us all, but played no role in the design of my robot. In fact, the majority of the time I spent building it was in the mechanical design process.

Edge What rendering package did you use to create the droid?
EH For modelling and rendering I use *SoftImage* running on an Indigo² Extreme. I'm most familiar with *SoftImage* and it is faster to use and faster to render than most of the competition. The texture maps were created in *Photoshop* on a Macintosh Quadra 950.

Edge How long did it take?
EH This robot is my working testbed for new ideas and techniques which have existed in one form or another for around two years. Currently it's nearing the end of its third complete rebuild and none of the original parts remain. It's difficult to say how long it took me to make as it was done sporadically, and in bits and pieces, as time and the needs of projects allowed. The →

It's not just the incredible detail and light sourcing that makes this droid stand out from the myriad half-baked attempts at CGI present in the videogames industry. Every limb, piston and joint mirrors the movement of a human body, making the motion captured creature a delight to watch. At present the robot is simply a work in progress model, a testbed for new ideas and developments, a fact which makes its intricacy even more difficult to believe.

Created by **Erik Holden**, graphic artist/game designer, Advanced Technology Group 2 (ATG2), Electronic Arts (California) on SGI using *Softimage*. Textures created in *Adobe Photoshop* on Macintosh



hydraulics, hoses and gears move exactly like you'd expect them. Expressions are a huge benefit to animators.

Edge What's the process of creation with 3D modelling?

EH I begin with a polygon-based cube. From this I can duplicate and extrude faces over and over to create many different and complex shapes. I like to use polys because they offer speed and flexibility for modification, and work well in a mechanical application. On the other hand, spline surfaces such as NURBS offer strengths like ease and control in texturing as well as smooth, curved shapes. I use these as sparingly as possible, and only when necessary. All the large pistons, and most of the head pieces, are spline objects.

Edge Is the droid going to be used in a future EA game?

EH In the past, it has appeared in two forms in two different products: once briefly in the intro cinematic sequence of *Shockwave: Operation Jumpgate* (3DO and Mac) and again as a supporting character in *Shockwave 2* (3DO). I'm currently modifying it for possible use in a game we're designing.

Name:	Erik Holden
Company:	Electronic Arts
Position:	Graphic artist/ game designer





By merging *SoftImage*-rendered CGI with blue-screened backdrops, some outstanding imagery was created for EA's *Shockwave* series

background, specially constructed for this image, took a day and a half to make.

Edge The model is incredibly complex, especially with the apparatus around its chest and back. How difficult was it to create?

EH Designing it is hard, building it is fairly easy. A lot of consideration went into the mechanics of the model. I'm a stickler for detail and must have my models look like they might work if they were built for real. I wanted to give the robot mechanical 'muscles', and I tried to use human anatomy as a rough guide. The design of these mechanics absorbed the majority of my time. It is often difficult to design a model which has the range and freedom of motion needed for animation as well as the look of something that might really work.

I also spent a lot of time optimising the model, merging geometry, simplifying wherever I could. It really pays off to do that. I also used constraints and expressions to drive a lot of secondary animation. All the pistons,

Jaleco releases a racing game to give *Rave Racer* a black eye or two, and Naska follows more traditional paths with *Metal Slug*

GT 24h



Developer: **Jaleco**
UK release date: **TBA**
Origin: **Japan**





Trackside features are typical, but well rendered (above). Spinning out (left) is one error that will necessitate use of the game's neat, if rather pointless, pitstop feature



Following Sega's announcement at the last AOU (Amusement Operator's Union) show that it would be licensing out its Model 2 hardware to thirdparty arcade developers, the first three companies to become involved are Jaleco, Tecmo and Data East. While Sega concentrates on new Model 3 development, these thirdparty developers will be working on products which Sega hopes will go directly up against Namco's machines – Tecmo's *Dead Or Alive* will be in competition with *Soul Edge*, while Jaleco's *Super GT 24h* will be going up against *Rave Racer*.

The game is similar to *Rave Racer* in many ways. There are four courses in total, although two of these are reverse tracks: essentially you have a beginners course, an advanced course and then a mirror of each. Naturally, there's a time limit, with time bonuses awarded at checkpoints. In the beginner's race the player has to complete six laps while on the advanced course only three laps are raced. Curiously, despite the short race length, there's a pitstop feature with the drivers themselves having to decide on the best time to pit in, just as they would in real racing. At present it's difficult to see how drivers can lose fuel or sustain damage to the point of needing a stop, and it's hardly likely to be an integral feature during racing.

Four cars appear for selection. Each is of a different design, although a similarity to the vehicles in *Rave Racer* is apparent. To go with the four cars, the game will appear in a networkable format, allowing up to four cabinets to be linked.

Visually, Jaleco appears to have successfully harnessed the power of Sega's hardware. While its game may lack the impact of *Daytona* or the style of *Sega Rally*, track detail is fine, and it has a memorable day-to-night transitional effect.

Car engine noises have been sampled from the real things to give sound a competitive edge, a feature that will be especially noticeable when there are four cabinets running in tandem.

Sega's *Daytona USA* still remains the favoured driving game coin-op among arcade-goers, and Jaleco's effort isn't likely to snatch away its popularity. Instead it will probably sit somewhere between Namco's *Ridge* and *Rave Racer*.



***GT 24h* demonstrates a common weakness among racing games: it has few tracks**



There are, of course, various viewpoints, the in-car option revealing a pair of polygon hands





Jaleco has prior experience in the field of driving games through coin-ops such as *Cisco Heat*, but Model 2 hardware makes all the difference

Metal Slug









The two players can move their weapons through 360 degrees. Available weapons are grenades, cannonballs, shotguns, machine guns, flame-throwers and rocket launchers. You can also leap inside a tank (the Metal Slug of the title) and use that to ever more devastating effect

Developer:	**Naska Corp/SNK**
UK release date:	**Out now**
Origin:	**Japan**

It's well into the 21st century, and General Morden and his rebel army have staged a coup d'état. While doing so the General stole a top secret tank called the Metal Slug. Fortunately, the tank is unfinished, so while the baddies are busy making final amendments it's the player's task (as a member of the resistance) to defeat the rebel army before the General's plans are realised.

However, despite this being an all-action, twoplayer, scrolling shoot 'em up, the game takes a decidedly comical stance. The weapons the players carry are far larger than the characters themselves and during one section you have to pilot a plane that is not entirely dissimilar to a child's toy.

The resistance fighters, named Marco Rossi and Tarma Roving, use weapons which can be rotated through 360 degrees and they can also throw grenades. On some levels it's even possible to jump into the Metal Slug itself and drive it, bringing to mind another war-based coin-op, *Ikari Warriors*. The tank also has a special option which, when activated, causes it to charge at the enemy destroying itself, but also inflicting much damage to the bad guys on impact.

As the players progress they'll be able to pick up bonus bullets which upgrade weapons, whose range consists of a shotgun, a flame thrower, a heavy machine gun and a rocket launcher.





The emphasis is on amusement, with comedy heroes and some ludicrous weapons

Secondary weapons such as cannonballs and grenades will also become available.

To break up the potential monotony of simple blasting, there are times when the players are called upon to save captive resistance soldiers. These will assist in the eventual defeat of the enemy and when saved will also furnish the player with a bonus item.

Naska has taken considerable care with *Metal Slug*'s visuals, and stages take place in a wide variety of intricately drawn locations. The first level sees the player battling through rivers and thick jungle









Metal Slug's graphics hark back to what many regard as a classic era in gaming

before reaching enemy facilities inside a wrecked submarine. After this is an assault on Ronbertburda City, and in a third episode the heroes travel through the Katehilt Valley battling against border guards and a powerful boss character called Sergeant Allen O'Neil.

Metal Slug will certainly be criticised for aspiring to themes last popular in the late eighties, but it will surely endear itself to those who appreciate games that are accessible and, most importantly, packed to gunwhales with action.

Gradius Deluxe Pack

As the retro phenomenon shifts into overdrive in Japan, one of the more welcome revivals from the old days appears on the Saturn in the shape of seminal shoot 'em up *Gradius* (aka *Nemesis* in the west). This pack gathers together the original game and its first sequel (*Gradius 2*, previously only seen on the Japanese MSX and PC Engine Turbo Duo platforms) on one CD, padding out the gaps with a long and very pretty rendered intro. This, in fact, is slightly annoying – the space would have been much better used on the decent SNES/arcade game, *Gradius 3*, or the pseudo-sequel, *Salamander*, and with the *Gradius* games being nearly a decade old, it seems rather stingy of Konami to only deliver half of the series.



One of the most graphically extravagant games of its day, *Gradius 2* is beginning to show its age

What you do get is pretty impressive, however – the games are indistinguishable from the originals, with various screen modes available for the real perfectionist ('Arcade', which has small black borders down the sides to recreate the original coin-op dimensions, 'Arcade Zoom', which simply stretches the same picture out slightly to fill the screen, and 'Full Size', which uses the full screen width but at the original scale, giving you a bit more horizontal room to play with and consequently making the game a bit easier).

Gradius actually seems to run slightly faster than its coin-op parent, but that could just be an observation borne of faded memories.

As the trailblazer for the modern power-up system, the balance of *Gradius* is a little off at times (lose your power-ups and you're really in trouble), but these are nevertheless excellently designed games which mark the birth of the modern shoot 'em up as we know it.

Format:	Saturn
Publisher:	Konami
Developer:	In-house
Release:	Out now (Japan)
Origin:	Japan





Its precursor is more simplistic still, but its gameplay remains strong

C64 pack

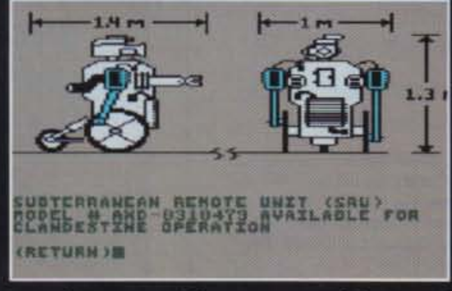
Activision's latest retro pack brings at least a little of the magic of the C64's early days to PC players. The games run through emulation, so you're getting the original, often crude, games rather than nineties updates.

The more notable inclusions among the 15 are *Little Computer People* and *Hacker*. The former was more an 'experience' than a game, involving the adoption of an on-screen character whom the player had to provide with life's necessities (food, music, phone calls) in order to keep happy.

Hacker, on the other hand, was a uniquely topical game in its day. The player had to illegally log on to a computer network and discover the secrets of the Magma Corporation from the inside. Unusually, there were no instructions or plot lines provided up front so the player started the game in total ignorance.

The remaining titles are *Beamrider, Park Patrol, Toy Bizarre, Alcazar, Master of the Lamps, Rock 'n' Bolt, Decathlon, Portal, Zenji, Great American Cross Country Road Race, Web Dimension, Top Fuel Eliminator* and *Zone Ranger*, making up an entertaining trip through the history of a truly classic 8bit computer.





Hacker was one of the most successful games of the 15. Its novel approach ensured its popularity

Format:	PC CD-ROM
Publisher:	Activision
Developer:	In-house
Release:	Out now (US)





Express yourself in ***Edge****. Write to:* ***Edge*** *letters, 30 Monmouth Street, Bath, Avon BA1 2BW*

I agree with **Chris Crawford** more or less in 'The way games ought to be', but there is a proviso.

The games industry is at a crossroads. The technology is at last capable of producing movie-like results, and developers are being courted by giant entertainment conglomerates, but some people are confusing this with their own abilities and their customers' expectations. *Wing Commander IV* (there are others, but this is an obvious example) is placing itself head-to-head against real movies, but people can see good real movies for a few pounds on a 40-foot screen with a big surround-sound system, or for a similar price from the local video store. Why would they pay £60 for the privilege?

We sell gameplay, and no amount of artwork can substitute for a well-crafted game. Until we have the budgets, technology and market to produce a truly interactive movie, the games industry should be cautious.

However, we cannot ignore the legacy of Hollywood totally. They have many years of experience that we can and should be learning from. They have the ability to tell a story and immerse the viewer using the subtleties of lighting, camera movement, sound and character. Personally, I have seen too many cut scenes in games which suffer from poor lighting, jarring shot construction, grim animation, and too much waving the camera around just because they can, or worse, to show off a nice piece of modelling.

Some games are getting there. I would argue that *Command and Conquer*, for instance, has the balance just about right. The cut-scenes are well scripted, atmospheric, involving, generally well-animated and acted and, most importantly, short and tightly edited. They get the story across and involve the player without being over long and getting in the way. They added value to the game without it suffering. The final sequences really add to the sense of achievement of winning, and enhance the whole gaming experience. Westwood now have an eager audience waiting for their next product, and their bit of the industry prospers. Providing they can keep the video under control it will continue to do so.

We are undoubtedly at the start of a gameplay backlash (hurrah!), but a lot of companies will throw out the baby with the bath water, junking the wrapper art - which can enhance the gaming experience - because it doesn't enhance the core game.

Chris is right, we aren't Hollywood, and shouldn't try to be, but given that intros and cut scenes are probably here to stay it is our duty as developers to make them look as good as possible within the constraints we all work under, just as it is our duty to make the in-game content look as good as possible.

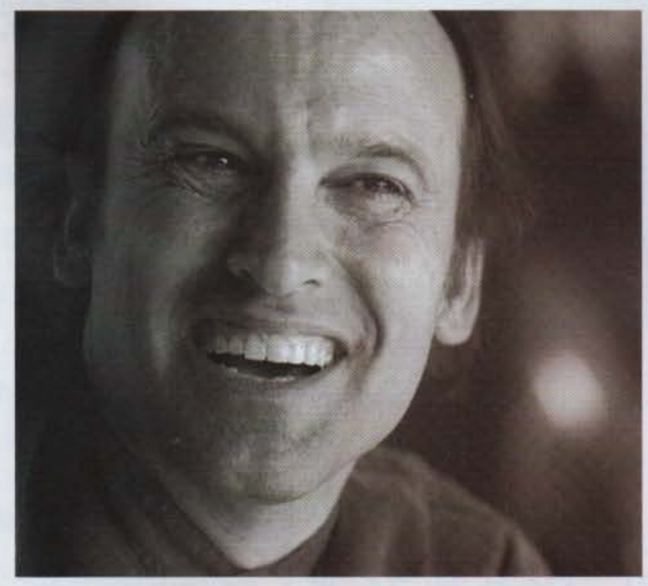
So yes, I am jealous of Hollywood, not because I want to be Ridley Scott, but because they have skills that too much of the videogames industry should have, but doesn't.

Drew Northcott, Lead animator, Microprose UK

Wing Commander IV - or indeed any interactive entertainment product - cannot, and should not, be directly compared to motion pictures, and your argument against Origin's game in these terms is ultimately fruitless.

Handled with consideration and subtlety, video sequences can certainly enhance software, but should never be incorporated in a game package just because the technology is there. Not every type of game is suited to such accompaniment.

The shoddiness of most prerendered footage is almost laughable, and many gamers have grown to skip past such sequences by nature. Non-



Chris Crawford has proved to be 'videogaming's most controversial columnist' – see letters from Drew Northcott and Mike Nichols

interactivity is the bane of every gaming traditionalist's life, and until the general quality of video footage is raised – after all, no one accepts tawdry in-game graphics any more – it will continue to carry an unsavoury reputation in their eyes, at least.

You were right to put **Frederic Raynal** in the Industry Top 50 (E30) – right over **Tom Zito**'s fat head. When I read the interview with him I just had to laugh. I can imagine Tom's reactions to the questions **Edge** asked that didn't appear in the interview. 'Variety, what's that? Interaction? Never heard of it.' And then he goes on about atmosphere for several hours. Which brings out more emotion: watching a clip with 11 big American football stars chasing you down a pitch which you've seen at least 50 times already, or wandering around a pitch-black cavern knowing that at any time your bowels could be torn out from behind?

And then he has a go at two of the very best games of all time, *Mario* and *Zelda*. The fun with *Mario* comes through wrestling with the controls to such an extent that the input device all but disappears – real hands-on control. *Zelda* is so big, with so many puzzles and locations – to do something like that with FMV would take up dozens of CDs and cost several million. Tom says it doesn't matter if 'That ant's a millimetre over to the right' or if the next step's four feet away. He obviously hasn't played *Doom*, *Descent*, *Hexen*, *Duke Nuke 'Em 3D* or even *Mario Kart*. In *Duke Nuke 'Em*, when confronted by a baddy, you can turn, walk backwards, strafe, jump, fly or fire back with different weapons. In Zito's *Maximum Surge*? Fire back, and, if you're lucky, duck.

When companies produce rubbish software, it's because of a lack of talent and/or effort on the designer's part. When people like Tom Zito think they're right, that's cause for concern.

Stephen Virgo,
Shoreham-by-sea, West Sussex

I believe there are still a great number of young people programming on their home computers (I'm not talking about PCs but decent machines such as the Amiga, ST and Acorn, etc). I program in the outstanding *Blitz Basic* on my 2Mb Amiga 600 and I have been programming for a number of years now. I personally know many other people who can program in *BASIC*. Although the language is slagged off because it doesn't give you enough control over the machine, I have demonstrated with the programming of texture mapping that it's possible to achieve some very attractive results, on slow machines, using *BASIC* programs.

Although new consoles are coming along, and selling well, people are also keeping their old computers for such things as programming, composing music, drawing graphics and also for the multitude of good games which are still being produced for these old machines.

The PC will never be able to replace the Amiga or ST because every model is different, it's very hard to perform smooth scrolling, there is no sprite hardware, and reading the joystick can take up to 10% of processor time, making it a programmer's nightmare.

I think the days of the bedroom programmer are not over if people start to realise that you can do more with old computers than might be first apparent. I mean, nobody ever thought there would ever be *Doom* clones on the Amiga!

Ian Hickman,
Evesham, Worcester

The days of the bedroom programmer are over in as much as it's no longer practically possible for a commercially viable project to be conceived, developed and completed by a one-man outfit. But home computing will always be the breeding ground for the development talent of tomorrow and, ultimately, it matters not a jot whether Amigas, STs or PCs are being used. Realistically, budding programmers are best advised to gain experience with PCs, if only because the format will still be around when many of today's consoles are pushing up daisies.



Who does Tom Zito think he is, claiming the future of videogaming lies with FMV. Everyone knows it's playability, argues Stephen Virgo

The joke is over. Stop publishing this idiot known as Chris Crawford. When was the last time he published anything worthwhile? *Balance of Power*? Nice try! I'd rather a hideous virus take over my machine than install that piece of crap! This man has no worthy contributions to make to the gaming industry. Chris, if you're out there, come back to us, babe. Or better yet, stop mourning the fact that you have never had a best-seller and stop dissing those who have. **Edge** and Next Generation should fill their pages with qualified developers and not this blow-hard, egocentric, self-proclaimed game guru. I mean, let's face it, the Atari 2600 has had better games published in the last 10 years than this guy has – and there haven't been any. Besides, what does this guy *really* know about the edge or next generation of gaming? If **Edge** or Next Generation think he's a respected figure in the gaming community, you're dead wrong. To be frank, it only brings your magazine down a notch in quality.

Mike Nichols,
Designer, Boss, Game Studios
mnichols@bossgame.com

Every war has its casualties. Initially, it seems those of the 32bit conflict should be Atari or 3DO. However, the real victims are the consumers, or more precisely, Sega consumers. I was once a loyal Sega owner, following the

Continued next page

Continued

brand from Mega Drive to Mega CD to 32X, only to see these hardware upgrades left in the software wilderness. They say a fool and his money are easily parted, and so in July 1995 I purchased a Saturn for £400. At the time there were two decent games for the machine - a driving game and a fighting game. Now, nine months later, there are four decent games - two driving games and two fighting games.

Now to rub salt into very fresh wounds I have seen the machine drop in price by nearly half, and have read that the new white Saturn will be just over a quarter the price Sega dared to charge me nine months ago.

I hope that the neutral pages of **Edge** has room for some biased vitriol - it must be of some significance that a once loyal Sega customer feels so bitter and cheated. Luckily I managed to ditch my Saturn while it still had some residual second-hand value. Meanwhile, I'll load my little grey box with its beautiful shiny black CDs instead.

David Nunns,
Sale, Manchester

Sega's aggressive pricing strategy is quite understandable: it needed to make up ground that it had lost to Sony, and - along with an upturn in software quality - the £250 tag has helped achieve that end. But, while Sega has earned respect in making the machine more accessible by lowering its price, it's clear to see that it has pissed off gamers who were early to adopt the Saturn. You have **Edge**'s sympathy.

Whatever happened to the early promise of this next generation revolution? As we were to pay for new console technology rather than cheaper cartridge-based systems, and with games appearing on amazingly cheap CDs, we would enter a gaming utopia, no more expensive cartridge-based games... Yet everyone is still paying £50 a title!

Not only this, thanks to your explicit coverage in **E**32, we all know that in Japan, a Saturn plus controller costs £125, and a PlayStation with two pads and a memory card is £155, yet in the UK, respective equivalents are £250 and £345! I admit that it is understandable to pay a *little* extra for that increased shipping distance and the wonderful circuitry that is a PAL signal converter, plus a little extra to go to the Chancellor, but I don't think that twice the Japanese price (or more) is a fair representation of these costs.

Even Stateside, a Saturn is only $249 (£166) and the standard one-pad PlayStation pack is $299 (£199). Since when in economic history has $1 equalled £1?

I thought that the 16bit scene was bad, but this is worse, what with most games running lethargically slow in glorious widescreen, on that *extra cost* PAL system. The British public is being, plain and simply, ripped off! Since selling my 3DO, for the first time since the era of the Atari VCS and the beginning of home computing I'm sitting on the fence, and I have a feeling that when Nintendo arrives on the scene with the N64 we're all going to remember how lucky we once were...

Lee Jordan,
Edinburgh

Videogaming in the UK is an expensive and, occasionally, frustrating hobby. Games published on CD sell here at £50 chiefly because the buying public will *pay* £50 for the privilege. It was perhaps overly optimistic to expect software prices to drop across the board once CDs became established as the storage medium of choice, and there doesn't appear to be any bucking of the trend around the corner.

Nintendo's dogged pursuit of silicon storage will certainly ensure videogaming remains an expensive pastime - somewhat ironic considering the N64's target audience is the 8 to 15-year-old bracket.

Ultimately, the only way inflated game prices will be eliminated is if gamers refuse to accept them by not buying new software. How likely do you think that is?

I quite enjoyed the nuGame culture feature (E31). One thing I noticed missing from the article, however, was the idea of different cultures (ie, European, Japanese, American, Mexican, etc) having different ideas about what is 'hip'. I live in the USA and, although I loved what Designers Republic did for *Wipeout*, many Americans did not feel the same way. Many of my naive peers thought it looked too 'fancy' and could not play it because it wasn't 'bad-ass' enough. Apparently Sony must have had some doubts because it is the only PlayStation game in America that comes packaged with a slipcover to hide the 'offensive' (read well-designed) cover. Also, dance music is quite different in America to how it is in Europe, and people who listen to bands like The Shamen and Orbital are the exception and not the rule (unless you live in LA). To most



It's too late for Sega with the low-price Saturn, says David Nunns. Early buyers are fed up

of the 'hip' Americans, dance music represents a Janet Jackson remix and therefore they want no part of it. Cocktail and Mambo music are pretty hip in mid-west America right now - and I doubt we are going to see any games based on those themes. I don't think the nuGame culture will catch on in any demographic (marketing) sort of way because the average consumers will still want heavy guitar music and Dungeons & Dragons-style covers, and thus will scare away hipsters.

Chip Sineni,
sinenic@vnm.viacom.com

The differences that exist between different continents' cultures are intriguing, and the *Wipeout* example is perfect proof of the low-risk approach taken by many American games publishers.

After reading the reports of the AOU show, I'm glad to see Sega once again dominating in the arcades and pushing back the boundaries with its Model 3 board. But I feel the company is putting too much emphasis on its coin-ops and not enough on the Saturn.

Most of Sega's top titles come out in the arcades first and take ages to reach the Saturn (this is especially frustrating as all of AM2 and AM3's games are brilliant). I know that this is a very important area for Sega but it doesn't mean the Saturn should be neglected. I can see several ways which Sega can address this problem.

More titles should be developed for the ST-V board. This way there can still be a stream of coin-ops which could be improved and released on the Saturn a couple of months later. Namco has, after all, made a success of its System 11 board.

Alternatively, coin-ops should be developed alongside Saturn versions, which would allow short conversion times while affording Sega the freedom to use its Model 2/3 technology.

Finally, why don't AM2/AM3 make original Saturn titles themselves?

Fyt,
Norwich, Norfolk

Simply put, the arcade industry appears to be more important to Sega than the home consumer market, and it will continue to focus upon this area in order to retain its dominance.

Original AM2/3 Saturn titles would be great, but **Edge** gets the impression those teams are overstretched already.



Modern beat 'em ups like *Tekken 2* may be displayed in 3D, but when it comes to the crunch it's still 2D gameplay, says Inderpal Panesar

I agree with you that the M2 Demo of the spinning polygon objects fails to impress visually, but break it down into technical terms and you might reconsider.

200 objects of 100 polys each at 30Hz is 200x100x30, which equals 600,000.

That's 600,000 polygons a second. Of course not all 600,000 polys are drawn but that's somewhere in the 300,000 to 400,000 range. And those are z-buffered, texture-filtered, perspective correct, and have three light sources! A PlayStation can only do around 100,000 and that's without z-buffering, filtering, perspective correction and without any light sources.

Even the N64 can only do about 150,000 polys with all the same options turned on.

Given the *proof* of these specs (ie, the demo does run on actual M2 hardware as opposed to marketing hype specs) the M2 is a killer machine. Let's hope Matsushita can get some decent software for it and they bring it to us for a reasonable price.

Gregg Tavares,
greggt@biggrub.com

The decision to go with a morphing torus and a collection of rotating nondescript polygons was probably the reason for the unimpressive nature of the M2 demos. If Matsushita had instead opted for an image with the impact and style of Sony's original T-Rex PlayStation demo, for example, it might have grabbed more attention. On paper, M2 does indeed have the potential to be a killer machine, but the format will struggle to gain support on the strength of such a showing. It's not just potential developers that need stimulating when new formats arrive, but those who are going to buy the machine, too. Matsushita needs to show hard, naked proof of its potential in the form of games if it is to avoid being left behind by the likes of Nintendo, which, while not having comparable power, has strength in the form of a host of strong software, which is easily just as valuable.

A question about 3D beat 'em ups: are they really 3D? Do the ones produced so far offer anything new to beat 'em up gameplay? Sure, the graphics on games such as *Virtua Fighter 3*, *Tekken* and *Soul Edge* are lifelike and realistic, but is the actual gameplay 3D? You have all the moving viewpoints, which can give some interesting views, but the actual fighting takes place on a 2D plane. So then what distinguishes the gameplay of a 3D fighting game such as *Tekken* from a more traditional 2D fighter such as *Street Fighter Alpha*? When I went to Namco's Wonderpark arcade in London after the ECTS, there were more people crowding around *SF Alpha* and *Killer Instinct 2*, which tells me 3D graphics add nothing to this genre but good looks.

Inderpal Panesar,
Plumstead Common, London

The presentation of games such as *Tekken* adds little to beat 'em up gameplay - *Toshinden* allows fighters to sidestep attacks, but SNK used a similar feature in 2D Neo Geo games such as *King of Fighters 95*. Developers recognise this, and games such as Square Soft's forthcoming PlayStation title, *Tobal No.1* - which claims to offer a *true* 3D experience - look set to pave the way for games that properly explore such a potentially rich area.

***Wipeout* was 'censored' in the US – a shame, says Chip Sineni**

In E18, when **Owen Davies** asked if PC-style games would appear on the new consoles, **Edge** replied, 'these consoles are capable of doing much more than beat 'em ups. Over the coming months you will be seeing software of all species including flight sims, management games and RPGs.' Fourteen months have now passed and based on **Edge**'s coverage not only have these promised games not been released but **Edge** considers the best games of the last four months to be, in fact, 2D beat 'em ups (*Street Fighter Alpha*, *X-Men*, *Night Warriors*, etc).

Despite **Edge**'s claims that the new consoles would focus on mature gamers, it is clear that nothing - apart from the graphics - has actually changed from the 16bit days.

Although the lack of support for adult gamers is disappointing, of greater concern is the surprisingly small number of top quality games. In the last 11 issues (July 95 to May 96) **Edge** has awarded seven PC games a score of 9 but only two Saturn games and one PlayStation game have received the same mark. Considering the graphical superiority of the consoles over the PC this gives some indication of the lack of originality and poor gameplay of many 32bit titles.

With the large number of console games in development the situation will hopefully improve but with new machines being released by Sega and Sony in only one-and-a-half years, at the beginning of 1998, time is running out fast.

Andrew Bradfield,
Dunedid, New Zealand

32bit console games have certainly taken their time in 'growing up', but it *is* happening - witness the likes of Psygnosis' *Sentient* and *The Fallen* (E33) for examples of two game types that are leagues apart from the likes of *Tekken* and *Ridge Racer*. But fast-paced action games just happen to be the most popular type of game - to both younger players *and* adults - if their standing in the Gallup charts is anything to go by, and they look like retaining the lion's share of the PlayStation's library.

Also, many games are developed on the PC first and then make the console cross-over, but because **Edge** concentrates on original titles, rather than ports, the PlayStation games, usually superior to the PC versions, aren't always covered.

nextmonth

Continued Edge 35

The promised investigation into the world of game controllers past, present and future was squeezed out this issue, but will appear next month. With Nintendo's great 64bit hope pioneering a revolutionary controller, Sega following suit by producing a similar device of its own, and entrepreneurial steps being taken in the PC games market, there is a transition in player interfaces to match that of the appearance of videogames.

Also next month, **Edge** visits the UK gaming industry's most famous independent publisher. Formed in the early eighties supplying low-cost software to the 8bit computer market, Warwickshire-based CodeMasters has taken on the big boys, Nintendo and Sega, and won, and now finds itself in a position where, along with supplying the playability it has always prided itself upon, it must address the demands of a visuals-hungry 32bit audience.

Image: *The City of Lost Children* © Psygnosis 1996

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